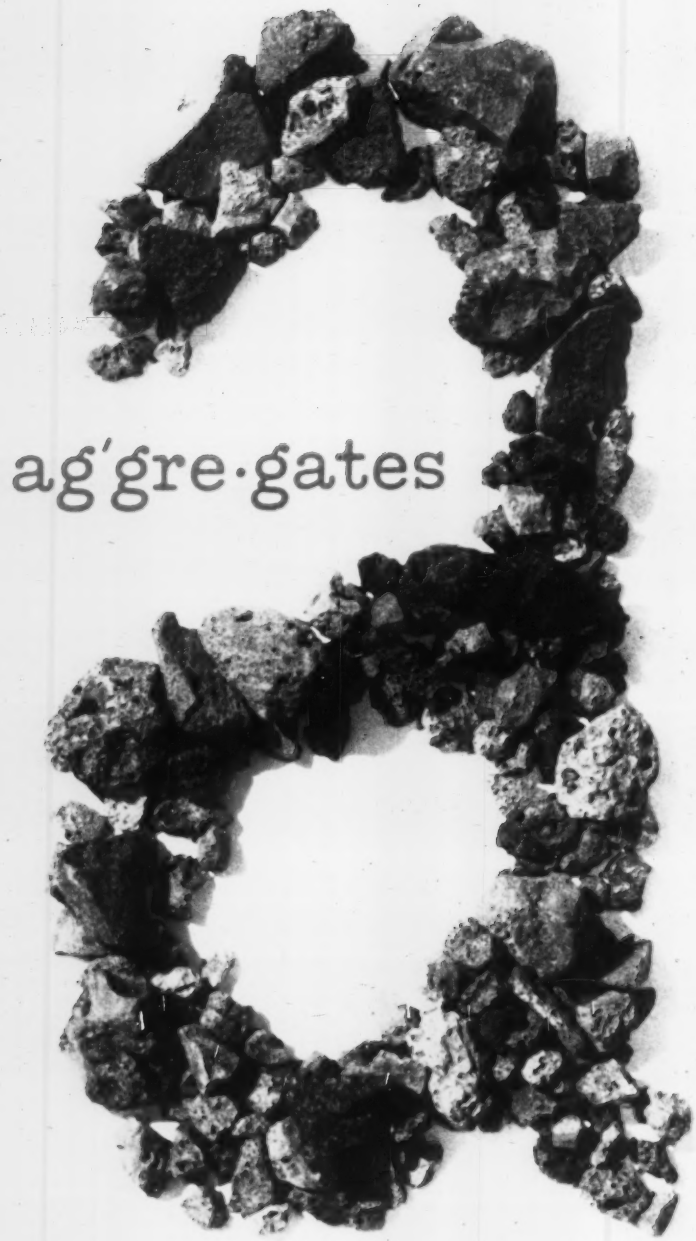
ENGINEERING NEWS-RECORD

Contractor Teer: "If we make 5%, we're doing well"

STEVENS RICE
UNIVERSITY MICROFILMS
313 N 1 ST
ANN ARBOR MICH

A McGRAW-HILL PUBLICATION



Any hard inert material for mixing in graduated fragments with a cementing material to form concrete, or the like.

Webster

Aggregates: stone . . . gravel . . . sand . . . slag. The stuff America builds with. The bedrock of our roads, runways, railroads . . . the guts of the buildings, bridges, dams, docks and sidewalks that make up the face of America.

Today, you have a one-word definition for aggregates . . . VULCAN. Vulcan Materials Company is the nation's No. 1 supplier of aggregates to America's giant construction industry. But . . . Vulcan is *big with a difference*. It gives you *local* service by *local* people familiar with your specific requirements.

For aggregates of uniform high quality . . . for on-schedule delivery from 115 production facilities that span the continent from the Great Lakes to the Gulf . . . the Atlantic seaboard to the Rockies . . . call the Vulcan office nearest you. It's listed in your telephone directory.

Vulcan Materials Company also produces Concrete Products, Surfacing Materials, Construction Materials, Chemicals and Metallics.

VULCAN MATERIALS COMPANY

P. O. Drawer 155 Birmingham 2, Ala.

Vulcan Materials Company:

- Birmingham Slag Division
- Brooks Sand & Gravel Division
- Chattanooga Rock Products Division
- Concrete Pipe Division
- Consumers Company Division
- Lambert Bros. Division
- Montgomery-Roquemore Division
- Stockbridge Stone Division
- Vulcan Detinning Division
- Frontier Chemical Company Division
- Teckote Corporation

Driving unspliced H-piles up to 94 ft long

Some of the longest unspliced lengths of steel H-piles ever used in the Buffalo area are being driven for the southern approach to the $11 million, 1.5-mile-long Union Ship Canal Viaduct at Buffalo. The Viaduct will relieve a congested industrial area by providing four lanes of concrete highway.

Steel H-piles up to 94 ft long were driven with a crane having a 123 ft boom, and operated by Bero Construction Corporation of Waterloo, N.Y. In all, several thousand tons of Bethlehem H-piles were required for the piers. The Viaduct is being erected by the New York State Department of Public Works.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA. On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. Export Distributor: Bethlehem Steel Export Corporation

BETHLEHEM STEEL

BETHLEHEM STEEL

Play Safe!

Use Foster's

LIGHTWEIGHT STEEL PILING

To protect your light-load excavations, use the method that costs less, helps get your work done faster and safer.

Rent or Buy Foster's Lightweight Piling, the modern, easy-to-handle steel sheeting that gives you greatest strength, pound-for-pound of any lightweight piling. It can be driven by maul or with lightweight power hammers—without special rigs or tools. New design interlock cannot jam, locks rigidly when installed, yet can be pulled easily and re-used again and again on many jobs. Immediate shipments from Foster stocks in 10-gage, in both 12 and 15 inch laying widths.

Write or call your Foster office for Lightweight Piling Catalog No. EP-1A

SINCE 1901

COMPLETE CONTRACTOR SERVICE

PILING • PIPE • RAIL • HIGHWAY PRODUCTS

L. B. FOSTER CO.

PITTSBURGH 30 • ATLANTA 8 • NEW YORK 7
CHICAGO 4 • HOUSTON 2 • LOS ANGELES 5

ENGINEERING NEWS-RECORD

EIGHTY-FIFTH YEAR OF PUBLICATION

ABP ABC MEMBER

Editorial Offices, 330 W. 42nd St., New York 36, N. Y.
New York - LOngacre 4-3000; Chicago - MOhawk 4-5800; San Francisco - DOuglas 2-4600;
Washington - REpublic 7-6630

Editor, Waldo G. Bowman

Senior Staff Editor, Arthur J. Fox, Jr.
Managing Editor, Edward H. DeHart
Senior Editor, Frederick S. Merritt

Highways, Airports—Transportation
Edward M. Young, Jr., Marc Leggiero, Joseph F. Wilkinson

Buildings, Bridges—Structures
Frederick S. Merritt, Marianne Stern, David B. Hill

Rivers, Sanitation—Water Resources
James B. Sullivan, Joseph N. Todaro, John P. Mahoney

Finance, Labor—Management
Robert J. Stinson, Charles J. Harding, Joel Roth

Regional Editors
J. Roland Carr, *Chicago, 520 N. Michigan Ave.*
Martha Alexander, *Staff Assistant*
Lauress L. Wise, *San Francisco, 68 Post St.*

Copy—Production
Barbara Lamb, Irwin Landau, William W. Jacobus, Jr., Evelyn Stepic, John C. Greenough

Presentation
Harry W. Jensen

Statistics, Prices, Costs—Business News
Elsie Eaves, *Manager*
Julia Mahoney, *Construction Reports*
Mildred Wetzel, Marian Sciorra, Diane Tartaglia, Marie Moravsik, Elaine Chomyak, Elizabeth Werra, Eleanor Queret
James Webber, Ruth Carlson, *Economics*
Evelyn Huber, *Statistics*
Bertha Herrmann, *Unit Prices*

Editorial Research and Indexing
Helen Rich, Eva Gierat, Rene Hax, Nancy Moore, Leah Shanks, Patricia Witschger

Consulting Editors: Van Tuyl Boughton, *New York*; Nathan A. Bowers, *San Francisco*

Advertising Sales Manager: Donald S. Robertson

Circulation Manager: Edward F. Bressler

Washington Bureau, National Press Bldg., Washington 4, D. C.: George B. Bryant, Jr., Chief; Alan E. Adams, Glen G. Bayless, Roy Calvin, Ernest Conine, John C. L. Donaldson, Jay Flocken, Boyd France, Anthony DeLeonardis, Arthur J. Kraft, Donald O. Loomis, Gladys Montgomery, Arthur L. Moore, Seth T. Payne, Dean Reed, Morton V. Reichek, Caroline W. Robertson, Vincent B. Smith.

Domestic News Bureaus: Atlanta 801 Rhodes-Haverty Bldg.: B. E. Barnes, Chief. **Chicago** 520 North Michigan Ave.: Stewart W. Ramsey, Chief; Elizabeth Wilson. **Cleveland** 55 Public Square: William G. Meldrum, Chief; Violet Bashian. **Dallas** 901 Vaughn Bldg.: Kemp Anderson, Jr., Chief; Lorraine Smith. **Detroit** 856 Penobscot Bldg.: Donald MacDonald, Chief; Barbara Biggs. **Los Angeles** 1125 W. 6th St.: John Kearney, Chief; Michael Murphy, Jack Meyer, Marvin Petal. **San Francisco** 68 Post St.: Margaret Ralston, Chief; Jeanne Keene, Donald Wiesner. **Seattle** 6056 Fifth Ave., N.E.: Ray Bloomberg.

Foreign News Bureaus: New York: John Wilhelm, Editor. **London**: William J. Coughlin. **Paris**: Robert E. Farrell. **Mexico City**: Peter Weaver. **Bonn**: Morris Hellitzer. **Beirut**: O. M. Marashian. **Tokyo**: Sol Sanders. **Caracas**: John Pearson. **Moscow**: Robert Gibson. Correspondents in 60 cities throughout the world.

Correspondents: In 79 principal cities in the U. S. and possessions and Canada.

McGraw-Hill Economics Department: Dexter M. Keezer, Director; W. H. Chartener.

Robert F. Boger, Publisher

ENGINEERING NEWS-RECORD, Vol. 162, No. 5, JANUARY 29, 1959

Published weekly by McGraw-Hill Publishing Company. James H. McGraw (1860-1948), Founder. Publication office, 99-129 North Broadway, Albany 1, N. Y. Entered as second class matter at the post office at Albany, N. Y., under act of March 3, 1879. Subscription rates in advance: **Executive, Editorial, Advertising and Circulation Offices: McGraw-Hill Building, 330 W. 42nd St., New York 36, N. Y.** Donald C. McGraw, President; Joseph A. Gerardi, Executive Vice President; Joseph Gaedeke, Vice President and Treasurer; Curtis J. Crane, Secretary; Nelson Bond, Vice President; Executive Vice President; Shelton Fisher, Senior Vice President; Ralph B. Smith, Vice President and Editorial Director; Joseph H. Allen, Vice President and Director of Advertising Sales; A. R. Venezian, Vice President and Circulation Manager. Subscriptions are solicited only from persons with identifiable commercial or professional interests in construction and building. Position and company connection must be indicated on subscription orders. United States, Possessions and Canada, one year $8.50, two years $12.00, three years $15.00; single copies, 50 cents. Foreign $20 per year; payable in advance. Second class mail privileges authorized at Albany, New York. Printed in U. S. A. This publication is indexed in U. S. Patent Office. Copyright © 1959 by McGraw-Hill Publishing Co., Inc. All Rights Reserved.

SUBSCRIPTIONS: Send all subscription communications and change of address to Subscription Manager, ENGINEERING NEWS-RECORD, 330 W. 42nd St., New York 36, N. Y. Subscribers should notify publication promptly of any change of address, giving both old and new address, and including postal zone number, if any. Please allow one month for change to become effective. When ordering a change, please send an address label from a recent issue of the magazine. Please allow one month for receipt of first copy.

Postmaster: Please send Form 3579 to Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.

UNITED STATES

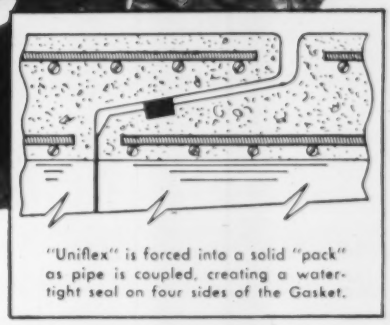
CONCRETE PIPE

with

"Uniflex"

JOINTS

- COUPLES QUICKLY
- SEALS TIGHTLY
- CUTS JOB COSTS



"Uniflex" is forced into a solid "pack" as pipe is coupled, creating a water-tight seal on four sides of the Gasket.

"Uniflex," the latest addition to the U. S.-Universal family of flexible couplings, cuts job costs with faster line assembly, stops infiltration and handles head pressures of 50 feet and above. As shown in the diagram, "Uniflex" forms a true compression seal on four sides of the gasket when pipe is coupled. "Uniflex" is quickly assembled to pipe by merely "snapping" into the die-cast tongue grooves. No adhesives are required.

United States Concrete "Uniflex" Pipe is manufactured in strength classifications meeting ASTM, AASHO, and other official specifications, and in 8′ or 12′ lengths. "Uniflex" Gaskets are available in rubber or neoprene. When designing concrete waste disposal lines anywhere in the area we serve, specify United States "Uniflex" Concrete Pipe and be assured of tighter lines laid at less cost. Details on request.

6070

UNITED STATES CONCRETE PIPE CO.

UNIVERSAL SEWER PIPE CORPORATION

PRODUCTS

Vitrified Clay Pipe and Fittings, Concrete Pipe, Vitrified Clay Liner Plates, Ship Lap Wall Coping and other Clay Products.

SALES OFFICES

Baltimore 27, Md.—Halethorpe Branch, Box 7428	Tel. CI-2-7400
Philadelphia, Pa. (Mail—Bristol, Pa.)	Tel. EN-6015
Bristol, Pa., Box 30	Tel. ST-8-5571
Cincinnati 44, Ohio, Box 536	Tel. LO-1-7846
Ft. Lauderdale, Fla., Box 958	Tel. LU-3-7220

GENERAL OFFICES • 1500 Union Commerce Bldg. • Cleveland 14, Ohio • Tel. Main 1-5240

V-LOK

TRADE MARK REGISTERED

Interlocking Framing System

High School,
South Lyon, Mich.
—all V-LOCK construction.
W. T. Anicka and Associates, Architect

PATENTED

For Fast, Low-Cost Steel Framing ONE METHOD STANDS OUT!

MACOMBER **V-LOK** provides a strong, rigid connection that needs no on-the-job bolting, riveting or welding. An entire building can be framed and under roof a few days after steel delivery. Finishing work can start immediately, regardless of weather. Completion and occupancy can be months sooner than with any other framing system.

To reduce cost per square foot and have the structural ruggedness of cold-rollforming, design with Macomber **V-LOK**.

V-LOK Design Manual is available.

MACOMBER

CANTON 1, OHIO

Why waste time greasing track on any of your tractors...

when you can have...

Permanent Lubrication
CERTIFIED

for truck wheels, front idlers and support rollers

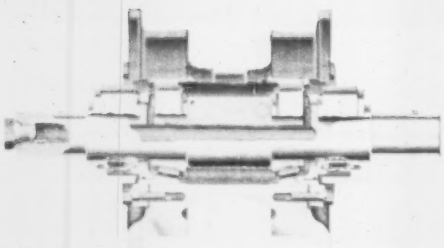
>>>

Now . . . Allis-Chalmers announces PERMA-SAFE lubrication for all models in its crawler tractor line . . . climaxing more than 20 years of constant research and on-the-job experience with Positive Seal, tapered roller bearing design. Now you can forget about track-level greasing . . . convert that lost time to profit time. Allis-Chalmers, pioneer of extended lube intervals, lets you take this big step ahead with complete confidence.

Permanent Lubrication
CERTIFIED

The Positive Seal
PERMA-SAFE
Wheel

for truck wheels, front idlers and support rollers on all models of Allis-Chalmers crawler tractors



See your nearby Allis-Chalmers dealer for the full story now. Allis-Chalmers Construction Machinery Division, Milwaukee 1, Wisconsin.

move ahead with

. . . power for a growing world

A Stang wellpoint system, engineered by professionals and installed by specialists, is predraining and stabilizing this excavation in the middle of the Cimarron River. There are no obstructions, the working area is free and dry, the excavation slopes are firm and steep. The system is efficient, fast, flexible and economical. This is typical of Stang jobs.

Engineers and Manufacturers of Dewatering Equipment, Wellpoint and Pumping Systems • Dewatering Planning • Equipment • Service

Putting water in its place

STANG

anyplace!

JOHN W. STANG CORPORATION

8221 Atlantic Avenue, Bell, California

Tacoma • Minneapolis • Omaha • Tulsa • Mobile • St. Petersburg

Contractor: Moore Bridge Co., Ada, Okla.

WELDED or RIVETED
STEEL PLATE FABRICATION

★ Boiler Casings
★ Boiler Breechings
★ Flues and Ducts
★ Condenser Shells
★ Condenser Piping
★ Heavy Turbine Housings
★ Fan and Blower Housings
★ Dust Collector Housings
★ Industrial Gas Mains
★ Expansion Joints
★ Hoppers and Bunkers
★ Tanks and Vats
★ Pressure Vessels
★ Wind Tunnels
★ Crane Bridge Girders
★ Trolley Frames and Trucks
★ Rigid Frames
★ Roll-Over Fixtures
★ Tank Turrets
★ Gun Mounts
★ Heavy Truck Bodies
★ Engine Frames and Bases
★ Crawler Frames
★ Press Platens and Beds
★ Press Columns
★ Heavy Machinery Parts and Assemblies
★ Gas Seal Hoods for Blast Furnaces
★ Furnace Roof Rings
★ Design Conversion of Castings to Weldments

MACHINING
★ Complete Machining Service—Facilities for Heavy Work of Unusual Dimensions

STRUCTURAL STEEL
★ For Buildings, Bridges and Special Purpose Structures
Drum Gates
Roller Gates
Taintor Gates
Taintor Valves
Protection Angles

THE R. C. MAHON COMPANY
DETROIT 34, MICHIGAN
Branch Offices in New York and Chicago
MAHON

Reader Comment

Volta Bridge—Long Arch

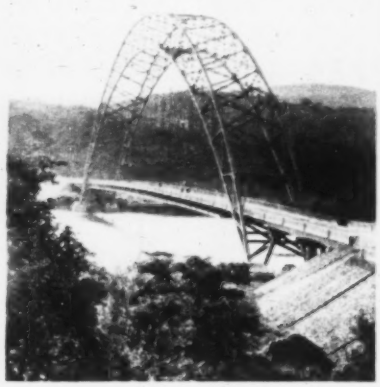
SIR—Researchers for your article, "Spanning Glen Canyon at 700 ft" (ENR Dec. 4, 1958, p. 34) seemingly failed to research your own archives. Otherwise the list of major steel arch bridges presumably would have included as No. 7: Name—Volta. Location—Ghana—Span—805 ft. Clearance to water—35 ft. Year—1956. (ENR Oct. 4, 1956, p. 56).

The conception of design and construction applied in the Volta Bridge set a new standard for steel arch bridges which has yet to be excelled, so far as we know.

Full details of the design and construction were given by the designers, Peter A. Scott and Gilbert Roberts, in the PROCEEDINGS of the Institute of Civil Engineers, April, 1958.

If ENR had had the Volta Bridge in mind, the use of tie back cables at Glen Canyon would not have been described as new.

The method of adjusting cable lengths is long familiar, but at the Volta Bridge the need for adjusting compression in the chords by jacking was eliminated, considerably simplifying the operation of closing the arch.



EDWARD M. GOSSCHALK
Senior Engineer
Sir William Halcrow & Partners
Consulting Engineers
London, England

Tension Limit for Bolts

SIR—Most articles on high-strength bolts indicate that a top-quality ASTM A325 bolt can be safely tightened to a point just below failure. The idea is that if it doesn't fail in this tightening process, it will never fail.

Theoretically, this is true. However, I question the basic theoretical assumption used in the reasoning that leads to this conclusion.

This assumption is that a steel bolt won't fail or relax until it reaches the yield point. This behavior, of course, is generally the case with the many fine bolts produced today.

However, our experience has shown that many bolts will not only relax before they reach the yield point, but will, in fact, elongate and fail over a period of time.

A high strength bolt will be tightened to near failure and left in good condition to stand overnight. The next day it will have relaxed enough to fall below the elastic proof load or it will snap in two pieces. If enough bolts in one connection do this, the joint would slip into shear and not be immune to fatigue stresses.

I suggest as a solution to this problem that an upper limit be put on the tension induced in the bolt. Current general practice involves using the elastic proof load as this upper limit for tension.

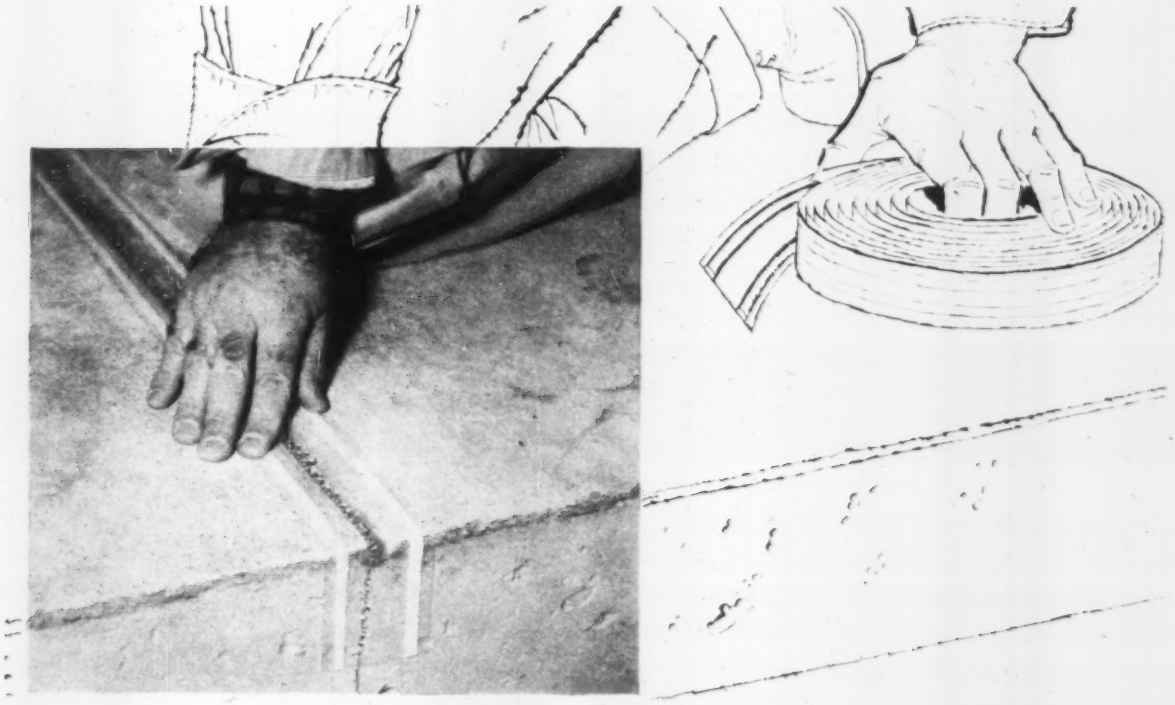
The only erection problem resulting is that the impact wrenches have to be calibrated each day. This takes a very short time, but insures a good bolting job.

I would appreciate comments from any other interested readers on this subject.

G. R. STELLER
Estimating Section
California Department of Water Resources
Sacramento, Calif.

(*Reader Comment continued page 12*)

Engineering News-Record welcomes expression of opinions from its readers. Comment should be as brief as possible and pertinent to subjects of current construction importance. Letters should be addressed Editor, Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.



New ConSeal* concrete joint curing tape prevents moisture loss from joints... keeps joints clean until sealed

(PRESSTITE #CD579 1)

Here's a double-duty tape that obsoletes all previous methods of curing and keeping freshly sawed or formed joints in PCC absolutely clean of foreign matter prior to joint sealing. Here are some of the things new CONSEAL will do:

- *Prevents loss of moisture* so essential to the curing of sawed or formed joints in green concrete.
- *Reduces spalling* of joints to absolute minimum.
- *Prevents infiltration* of all foreign matter until joint has been sealed.
- *Eliminates re-sawing*, blowing of joint with compressed air, wire brushing, or "hooking out" of incompressible materials lodged in joints.

CONSEAL consists of two ribbons of special adhesive, applied to a polyethylene tape, equidistant from center, and protected by a glassine backing. During application this backing is snapped off and the tape pressure-applied so as to straddle the joint.

CONSEAL can be applied within 30 minutes after sawing and water-flushing the joint. The moisture which collects on the underside of the tape within 10 minutes or less is the original moisture in the concrete so essential to the proper curing of the joint, and will be retained by CONSEAL until the joint sealant has been applied.

WRITE FOR FREE SAMPLE and descriptive literature. Address Dept. C-5.

*patent applied for

PRESSTITE SEALING COMPOUNDS

PRESSTITE-KEYSTONE ENGINEERING PRODUCTS COMPANY

K A P

A DIVISION OF AMERICAN-MARIETTA COMPANY • 3740 CHOUTEAU AVE. • ST. LOUIS 10, MO.

EXPRESS PAVER resurfacing 15 miles of U. S. Highway 70 south of Huntington, Tennessee. Warren Brothers also used Blaw-Knox Wideners on their portion of the $1,200,000 contract. Express Paver is laying upwards of 1,000 tons per day in a 1½ inch layer. Job Superintendent Bragg is shown at left and General Superintendent Duckworth at right.

"We're 50% ahead of schedule because of the speed of this Blaw-Knox Express Paver"

"Despite the difficulty of this particular mix, our Blaw-Knox unit is laying up to 142½ tons per hour. Although we've had weeks of bad weather, we're 50% ahead of schedule on the maximum 250-day contract time," says R. F. Bragg, Job Superintendent on the Warren Brothers project.

"The quality of roadway is superior to that layed by crawler-mounted equipment. And the Blaw-Knox longer wheelbase reduces waves in the pavement that are sometimes felt when driving over asphalt roads laid by shorter wheelbase pavers. Rubber tires make it possible for us to work faster in completing the major moves that the machine makes, and it paves up to 20% more in the same amount of time," adds Ray Duckworth, General Superintendent.

Here is another instance of proved advantages—faster, better quality paving with freedom of movement—that contractors everywhere are experiencing with the new Blaw-Knox Express Paver. See your nearest Blaw-Knox Distributor for a technical report on this project, or write direct. There's no obligation, of course.

BLAW-KNOX

BLAW-KNOX COMPANY

Construction Equipment

300 Sixth Avenue

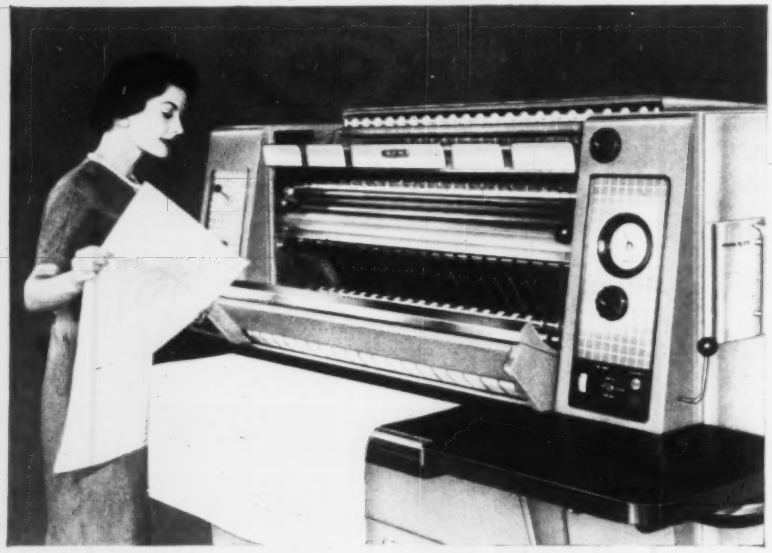
does both jobs equally well–Burroughs 205 Computer

From the sequential solution of long scientific problems to the mass processing of business data, the versatile Burroughs 205 electronic data processing system is ideally suited to a wide range of applications. Top capacity and speed in the medium price class, complete choice of input-output media, vast external magnetic tape storage. At work in many varied industries, the 205 has proven its superior dollar-for-dollar value. Its flexibility lets you grow into a larger Burroughs system as your needs increase. Burroughs extensive support program provides on-the-spot technical assistance for an advanced and complete line of data processing systems…all currently in production. Write for 205 brochure. ElectroData Division, Pasadena, California.

Burroughs Corporation

"NEW DIMENSIONS/in electronics and data processing systems"

Only Bruning's *New,* Years-Ahead *Copyflex 675*
Offers So Many Operator Conveniences!



Look! No Hands!
But the Paper Stays in Place!

No hands need hold paper on the feedboard of Bruning's new Copyflex 675 reproduction machine. A unique system of vacuum ports keeps material in position until the operator is ready to feed it into the machine.

This is just one of many new, advanced operating conveniences that include an exclusive four-way tracing tray that adjusts to stack or to permit fast removal of tracings...a feed band system that eliminates curling and wrinkling of tracings...enclosed, easy-to-load feed rods for roll stock... an electrically controlled machine height adjustment, and a split-shade lamp control that enables simultaneous insertion of different materials. For added convenience, there's a handy storage drawer and swing-out ash tray.

Add to these operator conveniences the 675's 46-inch printing width, a mechanical speed of up to 75 f.p.m., and a fast-printing 7,500 watt lamp variable to 5,000 watts. All this, plus many other advancements, puts the "675" years-ahead of any other reproduction machine on the market. It's the modern whiteprinter that gives your operators MORE to do MORE for you.

BRUNING
Copyflex
Diazo Reproduction at Its Best

The Bruning Man *is your expert on Diazo reproduction. He's backed by a company with over 60 years' experience as researcher, manufacturer, and supplier. He's located in principal U. S. cities.*

Charles Bruning Company, Inc., Dept. 1-V
1800 Central Road, Mount Prospect, Ill.
Offices in Principal U.S. Cities
In Canada: 105 Church St., Toronto 1, Ont.

Please send me my free booklet on the new Copyflex Model 675.

Name _____ Title _____
Company _____
Address _____
City _____ County _____ State _____

. . . Reader Comment

Construction is 'Human'

SIR—In the Nov. 27, 1958 issue, the contracting business was referred to as a "legalized gambling game."

This could lead one to picture a business or industry concerned only with such financial considerations as estimates, bids and profits.

I recently had an experience with a member of Turner Construction Co., that paints a different picture.

About forty years ago I worked for Turner on the construction of the Army Base in Brooklyn, N. Y. At that time, they issued a job publication. My picture appeared in one of the issues with other members of the field engineering department.

A few weeks ago, I called Turner and told my story to A. R. Le Faucheur, director of public relations, asking him if I could obtain a copy of that particular issue. I now have it.

It seems to me that if construction is a "legalized gambling game," in some cases it is a "humanized legalized gambling game."

HARRY FINBERG
Brooklyn, N. Y.

Editor's Note: Construction may be called by many names—but only by those with affection for it. Mr. Finberg is obviously one of those.

Oh, Pshaw!

Chief architect on the Chicago Exposition Hall is Alfred Shaw, not Alfred Saw as reported in ENR Dec. 18, 1958, p. 26.

For Your Calendar . . .

National Bituminous Concrete Association, 4th annual meeting, Americana Hotel, Miami Beach, Fla., Feb. 2-6.

American Society of Civil Engineers, Hotel Statler, Los Angeles, Calif., Feb. 3-13.

Mason Contractors Association of America, ninth annual convention and 1959 Show, Chase-Park Plaza Hotel, St. Louis, Mo., Feb. 15-18.

National Ready Mixed Concrete Association, Roosevelt Hotel, New Orleans, La., Feb. 15-19.

National Society of Professional Engineers, Dinkler-Tutwiler Hotel, Birmingham, Ala., Feb. 18-21.

American Concrete Institute, Statler Hilton Hotel, Los Angeles, Calif., Feb. 23-26.

National Council for Stream Improvement, Waldorf-Astoria, Astoria Gallery, New York, N.Y., Feb. 25-26.

Second Annual Building Congress on Urban Renewal, National Housing Center, Washington, D.C., Feb. 26-27.

22nd Highway Engineering Conference, University of Kentucky, Lexington, Ky., Feb. 26-27.

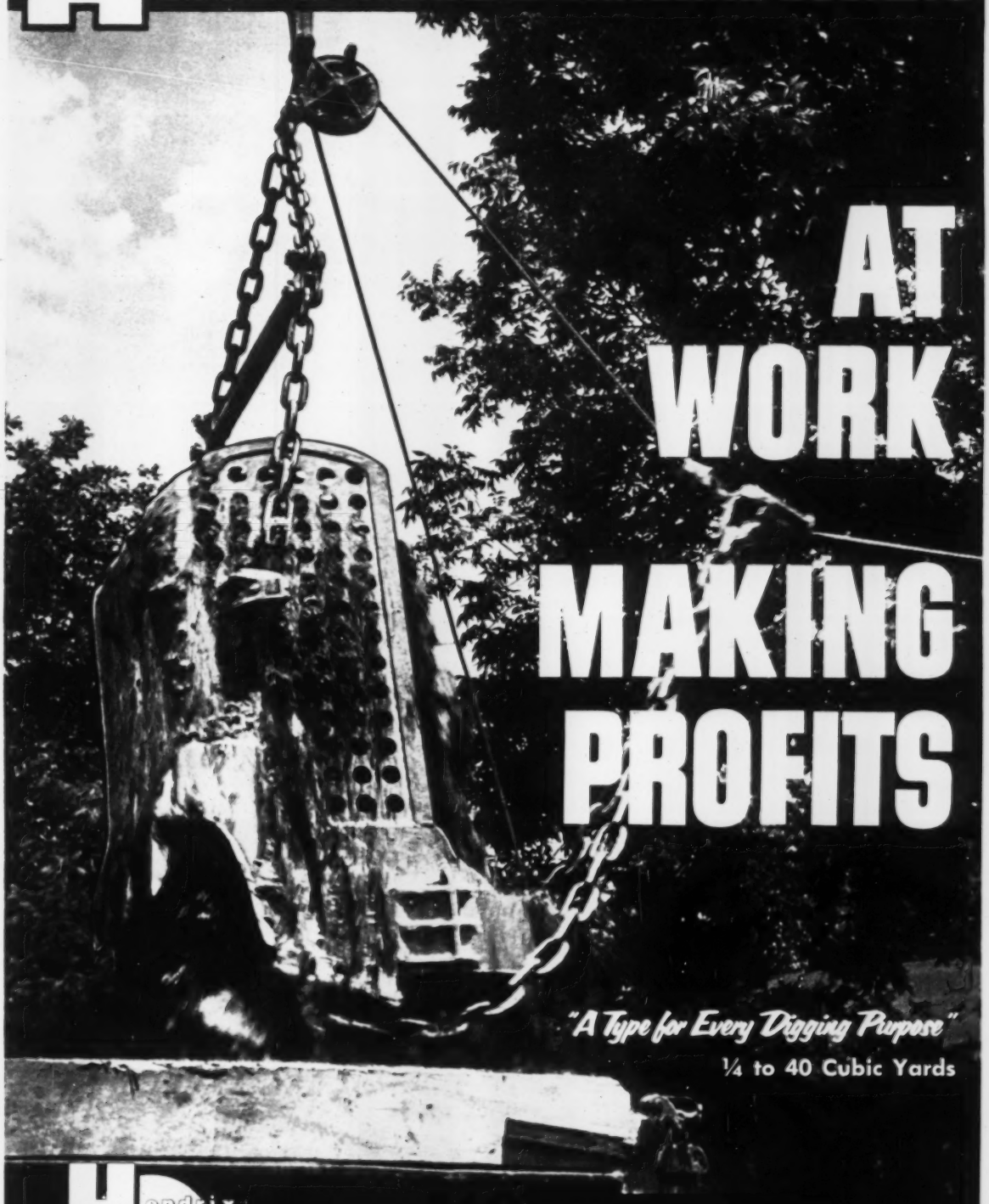
American Society of Photogrammetry, Shoreham Hotel, Washington, D.C., Feb. 26-27.

American Railway Engineering Association, Sherman Hotel, Chicago, Ill., Mar. 2-4.

American Congress on Surveying and Mapping, Shoreham Hotel, Washington, D.C., Mar. 2-6.

9th Annual Iron and Steel Conference, Dick Roosevelt Hotel, Pittsburgh, Pa., Mar. 11-12.

HENDRIX DRAGLINE BUCKETS



AT WORK MAKING PROFITS

"A Type for Every Digging Purpose"

¼ to 40 Cubic Yards

Hendrix Lightweight Dragline Buckets

All Hendrix Buckets available without perforations

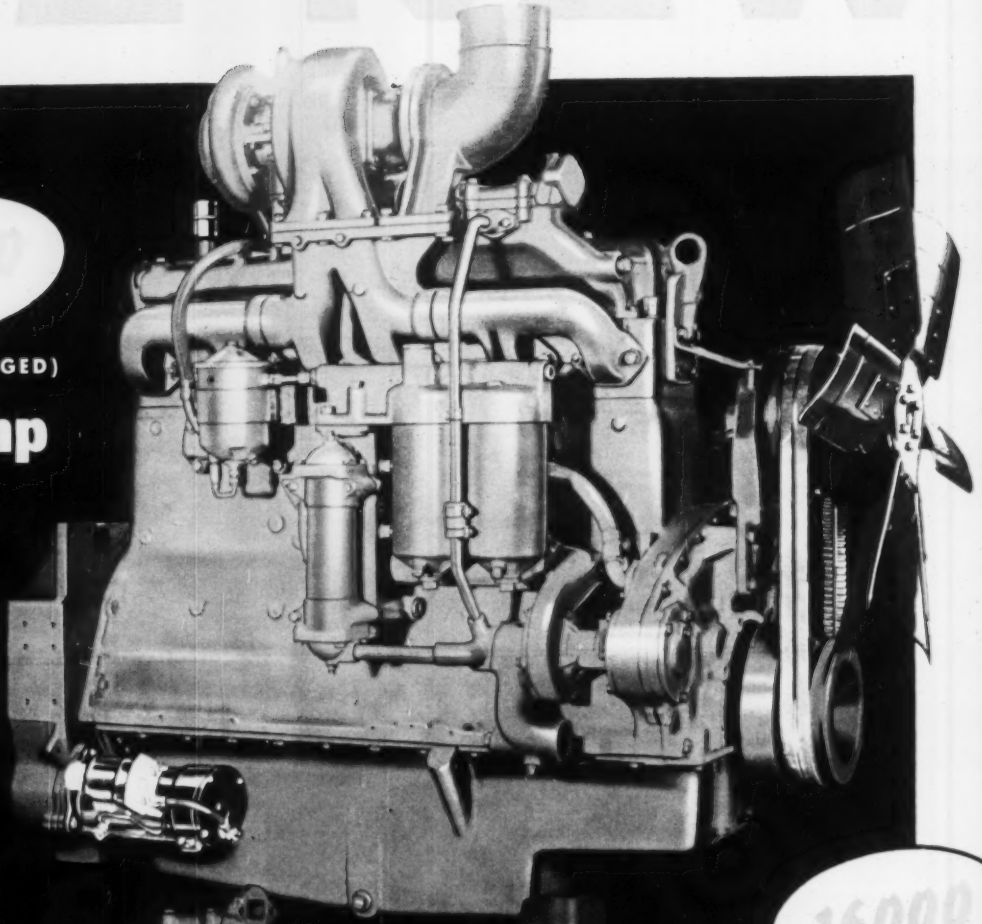
HENDRIX MANUFACTURING COMPANY, Inc.

MANSFIELD, LOUISIANA

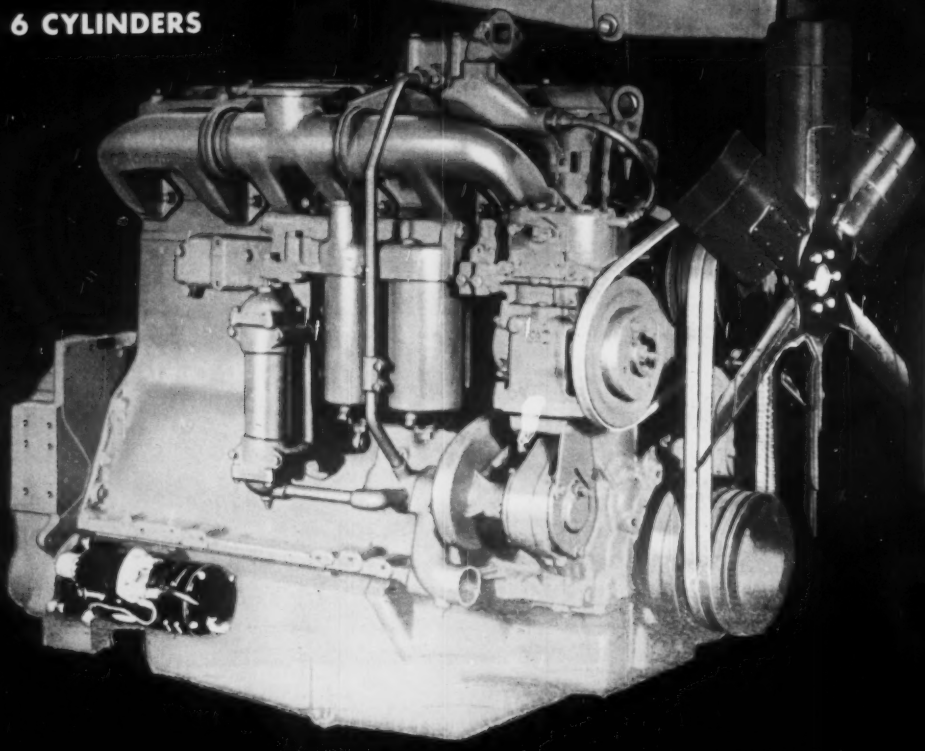
2 NEW

(TURBOCHARGED)

340 hp



6 CYLINDERS



230 hp

Available in all these models

BE-12

DIESELS

that give you

More Horsepower

With 340 hp in the turbocharged 21000 and 230 hp in the 16000, you have the reserve power to operate smoothly and efficiently under extreme load conditions.

More Torque

. . . throughout the operating speed range. Torque is consistently high . . . provides the "umph" to do the job . . . walks into and *through* heavy loads.

Clean Design

Modern engineering means greater dependability, less maintenance, easy installation. To further simplify servicing, there is 98 percent interchangeability of parts between the Allis-Chalmers 16000 and 21000 engines.

Clean Exhaust

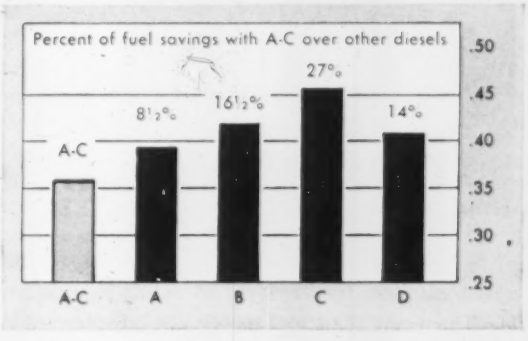
These diesels have a new combustion system* that provides *thorough* mixing of air and fuel for complete combustion. Fuel makes horsepower — not smoke!

*Write for full details on Allis-Chalmers' new combustion system.

Greater Fuel Economy

This chart compares fuel economy of the new Allis-Chalmers engines to others in their class. Economy like this gives you from 1 to 2½ hours of extra production a day doing the same kind of work — using even less fuel.

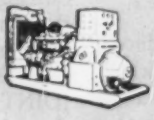
FUEL CONSUMPTION
Pounds per brake hp hr



ENGINES

OPEN POWER UNITS

CLOSED POWER UNITS


GENERATING SETS

MARINE DIESELS

TORQUE CONVERTER UNITS

OFF-HIGHWAY VEHICLE ENGINES

Let your Allis-Chalmers dealer show you the many other features that put the *profit* in performance. Write for FREE new 16-page bulletin BU-540. Allis-Chalmers, Milwaukee 1, Wisconsin

ALLIS-CHALMERS

POWER FOR A GROWING WORLD

When the log jam breaks...

Thousands of tons of timber will be unleashed on the waters of the river. Similarly, our explosive surge of population is bearing down on already overburdened water works facilities in many communities.

New pipelines are essential; but only pipe of sustained high carrying capacity can meet greater demands with constant, predictable volume. That's why efficiency and economy dictate the use of LOCK JOINT CONCRETE PRESSURE PIPE for water supply and distribution lines. Its first low cost, ease of installation, long life, negligible maintenance and permanent high carrying capacity represent immediate and long term economies.

To bolster your water system against the shock of our yearly 3,000,000 increase in population, specify LOCK JOINT CONCRETE PRESSURE PIPE for complete dependability and over-all economy.

LOCK JOINT PIPE CO.

East Orange, New Jersey

Sales Offices: Chicago, Ill. • Columbia, S. C. • Denver, Col. • Detroit, Mich. • Hartford, Conn. • Kansas City, Mo. • Perryman, Md.

Pressure • Water • Sewer • REINFORCED CONCRETE PIPE • Culvert • Subaqueous

ENGINEERING NEWS-RECORD

Vol. 162, No. 4 January 29, 1959

Number of copies printed this issue 83,486

CONTENTS

NATIONAL AFFAIRS

Federal Aid Gets a Going-Over 21
Storms Wreak Havoc in Several States 24
Wither Public Works? 26
U. S. Pays a $1.5-Million Bill 27
Illinois Revises Its Fire Code 27
Big Water Development Plan for California 27
Anchorage Getting Two Big Buildings 28
Chicago Traffic Gets Hung Up 28
New York Road to Get Aluminum Bridges 28
Beehive of Atomic Research 29

FEATURES

ICBM: Now the Accent Is on Construction 30
Is There Progress in Teaching Construction? 35
World's Biggest Drydock Will Be Lightweight Box 38

INTERNATIONAL

Iraq Squeezes Western Builders 42
How U. S. Firms Will Make Out in Iraq 44
Dirt Houses Come Dirt Cheap 48

NEW PRODUCTS

Two New Earthmover Entries 50
Manufacturers' Publications 51

MEN AND JOBS

Nello Teer: Contractors Must Be Better 52

BUSINESS AND FINANCE

Can Bid Shopping Be Curbed? 77
Airports: Collision Coming 78
New Budget: Corps Work Hits New High 79

LABOR

Labor Bill's Off to Poor Start 80
Homebuilders Seek Lower Labor Costs 81
Labor Unity Shows Improvement 82

Reader Comment ... 8 | Unit Prices ... 58
Calendar ... 12 | Materials Prices ... 61
Washington Observer 19 | Construction Reports 66
Books ... 57 | Statistics, Indexes ... 71
Editorials ... 92

Back issues of ENGINEERING NEWS-RECORD *are generally available for the previous six months. Semi-annual indexes will be sent on request.* ENGINEERING NEWS-RECORD *is also indexed in Industrial Arts Index and Engineering Index.*

THE CONSTRUCTION WEEK

COMPETITIVE A-POWER?—Westinghouse Electric Corp. wants to produce a huge nuclear power plant that stands a good chance of being economical to operate. The plant would be an advanced, pressurized-water reactor design with a 330,000-kw capacity.

FISHING: FOR PONTOONS—They're going to team up compressed air and hand-operated hoists to try raising those two 50x360-ft. concrete pontoons from the bottom of Seattle's Duwamish Waterway. The pontoons, intended for the Hood Canal floating bridge, sank last month (ENR Jan. 8, p. 25). Compressed air will be pumped into some of the pontoons' cells. Twenty-four 100-ton hoists will supply the lifting power. Salvage expert Fred Devine, of Portland, will supervise the rescue job.

FISHING: WITH PONTOONS—Divers will use pontoons to try raising Idaho Power Co.'s 100-ton "skimmer" fish trap from the bottom of the Snake River. It's apparently undamaged in 100 ft of water. The 68½-ft-long skimmer sank on the Oregon side of a fish net across the Brownlee Dam Reservoir. The $5-million system of nets, skimmer traps and pipeline is the first downstream fish-handling facility ever attempted (ENR Aug. 14, 1958, p. 46).

ADDING INSULT TO INJURY—In a strange aftermath to an unusual accident, a 525-ft grain ship came to rest atop the wreckage of a 200-ft lift bridge it knocked into the Buffalo River last week (see p. 24). Falling water level after the crash lowered the stern end of the vessel onto the tangled steel, making a tough job impossible for wreckers trying to clear the river. Owners of the ship are pumping out fuel and shifting cargo to lighten the trapped vessel.

TREAT SEWAGE AT ANY COST—New York State can now compel localities to build major sewage treatment facilities regardless of cost and regardless of the community's ability to pay. All the state need show is the need for pollution abatement, says the N. Y. Court of Appeals.

ASTM TO EXPAND—The American Society for Testing Materials will organize a Division on Materials Sciences to collect and publish basic information on behavior of materials. The new division will assist or coordinate with research activities under way in many ASTM committees.

WET WEEK IN ENGLAND, TOO—While storm-swollen rivers rampaged on the U.S. side of the Atlantic last week (p. 24), Britain's normally placid Thames was having a go too. Heavy rains raised the level four feet above normal and sent the stream coursing over large low-lying areas. Many families were marooned in riverside homes.

man! that BAY CITY has
real rugged machinery!

PERFORMANCE PROVED

BAY CITY

276

THE WORLD'S BEST BUILT SHOVELS AND CRANES

BAY CITY SHOVELS INC., BAY CITY, MICHIGAN, U.S.A.

WASHINGTON OBSERVER

- **Democrats rush big omnibus housing bill**
- **Federal order stirs up equipment fight**
- **New bill would aid public power groups**
- **Ike's bond retirement plan doomed?**

- **A new speed record toward passage of a multi-billion omnibus housing bill is being set by the Democrats.** They show every sign of fulfilling a promise to have the bill at the White House by March 1. It would provide mortgage insurance and subsidies for private housing, public housing, college housing, urban renewal and veterans housing.

  Short cuts are being taken to eliminate the need for a stop-gap FHA bill, as Mr. Eisenhower wants. Purpose of the bill would be to permit FHA to end its rationing of mortgage commitments. But the Senate Banking Committee expects to have its bill on the floor by next week—and it could be passed by the end of the week. The House Banking Committee begins its hearings this week. The Veterans Affairs Committee (which handles the GI housing legislation) is now writing its section of the bill, too.

  The Democrats are ignoring the President's housing bill, introduced last week by Indiana's Sen. Homer Capehart. Mr. Eisenhower's program calls for about the same outlays as the last budget—but would result in a tapering off of federal aids thereafter. The Democrats would guarantee expansion of federal aid to housing for a period of years.

  There's some question whether Mr. Eisenhower will veto the Democratic bill. He has weakened his veto threat somewhat by saying he will look at the over-all impact of a law to see whether its total effect is more on the good side than on the bad. The Democrats are sure they can override a veto if it comes.

—

- **Award of a $1.7-million government contract for hydro turbines has stirred up another furor over government policies.** The Corps of Engineers—at the direction of the White House—awarded the contract to Baldwin-Lima-Hamilton Co., Eddystone. An English firm, English Electric Co., bid 19% lower than the American firm. The U. S. makers of heavy electrical equipment are pressuring the Office of Civil and Defense Mobilization to cut all imports on the grounds that the domestic industry needs protection if it's to be available in the event of a national emergency.

—

- **New legislation has been introduced to give public power groups a better break in winning Federal Power Commission licenses.** Chairman Warren G. Magnuson (D., Wash.), of the Senate Interstate Commerce Committee, and a group of Northwest Senators are behind the bill. It would revise FPC standards to give greater weight to basin-wide benefits of a given project, rather than more local benefits to the builder and his power customers.

—

- **Mr. Eisenhower's proposal to retire Treasury bonds by giving holders FHA and VA mortgages isn't given much chance.** He wants to retire some of the Treasury debt. But the opposition points out that he'd be giving up government-held 4% paper to take in bonds that cost the government 2.75% interest. About $335 million of bonds would be involved.

US RUBBER PILOT PIPE

UNDERWATER, UNDERGROUND—
this hose loves its salt diet

A large western salt company,* expanding its operations, faced an unusual problem recently: How to economically and efficiently move brine solution across the 600-ft. wide Napa River.

So they turned to 16" U.S. Rubber Pilot® Pipe.

Metal pipe could not be used because it would corrode quickly and because it lacked flexibility. But corrosion-resistant, flexible rubber Pilot Pipe has no trouble withstanding the salt water that has acid content with a PH ranging from 2.8 to 3.5. Moreover, it is flexible enough to follow the contour of the river bottom on which it lies and to handle any shifting due to river currents. Its sturdy cover is unaffected by both river silt and exposure to weathering (where it comes out of the water on either side of the river).

You'll find U.S. Pilot Pipe at work in a wide range of industries, in a wide variety of demanding uses. It's available to you at your "U.S." Distributor.

*Leslie Salt Co., Newark, Calif.

• • •

When you think of rubber, think of your "U.S." Distributor. He's your best on-the-spot source of technical aid, quick delivery and quality industrial rubber products.

US RUBBER

Mechanical Goods Division

United States Rubber

WORLD'S LARGEST MANUFACTURER OF INDUSTRIAL RUBBER PRODUCTS

Rockefeller Center, New York 20, N.Y. In Canada: Dominion Rubber Company, Ltd.

Federal Aid Gets a Going-Over

- **In Miami Beach, federal aid for school construction was lambasted by the Associated General Contractors.**
- **In Dallas, there was a clamor for more U. S. funds for highways from the American Road Builders Association.**
- **In Chicago, the National Association of Home Builders split over what to ask from Uncle Sam. "More aid" won by six votes.**

If the federal government hasn't known what's on the construction industry's mind, it knows now.

The major constructors in the industry last week sounded off all at once—it not all in unison.

At three different conventions—Associated General Contractors, American Road Builders Association, National Association of Home Builders—they passed resolutions by the score: strong, weak, specific, general and contrasting, if not conflicting, resolutions.

Although the thinking of one part of the industry apparently does not always agree with the thinking of another section, there is no doubt what they were thinking about last week: the federal government's role in construction.

The general contractors discussed federal aid for school construction and decided they wanted none of it. Neither do they want to be considered small businesses eligible for the protective attentions of the Small Business Administration. Tough as competition is among them and among their subcontractors, they were saying, in effect, that they'll stick with the competitive bidding system. They like their industry the way it is, and they see SBA policies as incompatible with it.

The roadbuilders, of course, are in an area of construction where federal participation is established and accepted. They want more federal aid to make sure the national highway construction program goes ahead on schedule. And they're shouting loudly for it, because this is the session in which Congress should produce it.

The homebuilders this year seem able to take federal aid or leave it. They were an optimistic lot in Chicago last week, not seeming to care whose housing bill gets through Congress this session. They see a good construction year ahead with or without legislation.

Here's a rundown on events at each of the three meetings last week:

Contractors fear federal school aid, reports ENR's Ed Young.

Associated General Contractors last week condemned federal aid for school construction as unnecessary and uneconomic.

And it objected to "subsidization" of construction by the Small Business Administration.

The general contractors expressed concern over highway financing and airport financing, but they want no part of school construction financed by the federal government.

In a resolution of opposition, the contractors gave three principal reasons:

- Financing of school construction in this country has been, traditionally and constitutionally, the responsibility of the states and local communities.
- Use of federal funds for school construction is a step toward federal control of education.
- Federal controls would add to cost of school construction.

Behind the stated reasons there were a few others:

- There appears to be a strong belief among builders that states and municipalities are doing an adequate job.
- As taxpayers, builders dispute the something-for-nothing notion of federal aid, claim its administrative costs would use up funds that might otherwise go into construction.
- Members—particularly contractors from the South—fear federal influence on integration.

The "federal control" that contractors fear would boost construction costs refers to the Davis-Bacon Act. Its provisions on wages paid to construction labor does not apply to school construction now, and contractors hope they won't be applied later.

• SBA rebuffed—The federal government's Small Business Administration took double-barreled blasts from the contractors and a contracting agency.

SBA's Deputy Administrator Donald Hipkins explained his agency's right "to insure that a fair proportion of total government purchases and contracts . . . be placed with small business enterprises."

Reaction was bitter. Contractors maintain they are almost all small businessmen, and they don't want SBA meddling with their competitive system of bidding.

By SBA's own definition, a small business is one not dominant in its field and having an average annual income of $5 million or less over the past three years. This describes 90% of AGC members.

The Bureau of Yards and Docks' chief, Rear Admiral E. J. Peltier, supported the contractors' stand. He claimed that 97.5% of BuDocks' contracts, worth 91% of its construction dollars, go to "small businesses."

Admiral Peltier argued that SBA's "set aside" program isn't worth the effort in construction. (SBA takes a portion of government contracts out of competition for negotiated award to small operators.)

(Turn the page)

. . . Roadbuilders are worried about highway funds;

• Civil defense pushed—Maj. Gen. E. C. Itschner, Chief of Army Engineers, outlined what it would take to clean up after a 10-megaton, surface nuclear blast in any big U. S. city.

First, he said, it would take 75,000 men a month to decontaminate an area 18 miles square. Then, it would take 1,200 power shovels, 1,200 draglines, 2,000 bulldozers, 1,000 trailers and 7,000 trucks to clean up the rubble.

In response, AGC announced plans for a nationwide network of disaster units, organized and composed of AGC members, but open to all contractors.

A few such units are already set for action. Contractors in them keep the local AGC office informed on the availability of equipment and personnel.

James W. Cawdrey, Seattle, Wash., was installed as the association's 1959 president, succeeding Fred W. Heldenfels, Jr., Texas highway contractor. John A. Volpe, Malden, Mass., was installed as vice president.

Arthur S. Horner, of Denver, Colo., was elected secretary-treasurer. Mr. Horner, an AGC past president, succeeds William Muirhead, of Durham, N. C., another past president, who had held the secretary-treasurer's post for 12 years.

Roadbuilders' theme song is "more US aid," reports ENR's Roland Carr.

It's now a familiar cry: more money, more Congressional authorizations for the nation's road program. You hear it louder and more frequently as the time nears when something has to be done.

For it won't be long before 1961 interstate road money should be apportioned to the states—and there may not be any money in the till.

The cry went up again at the 57th annual convention of the American Road Builders Association, in Dallas, last week.

Here's what the roadbuilders had staring them in the face:

Based on the latest official cost estimates, authorizations for the Interstate Highway System for 1962 through 1969 the year actual building should be finished—are shy of $10.2 billion.

By 1960, the Highway Trust Fund will be inadequate by $960 million. By 1963, the deficiency will be $5 billion.

Total income to the Trust Fund through 1972—its termination date—will be inadequate by about $12.6 billion.

No one wants to stretch out the building part of the program. To avoid the immediate and long-range havoc that the short money situation would certainly wreak on the timetable, the ARBA urges Congress to:

- Revise federal authorizations as needed to reflect revised cost estimates.
- Completely suspend the "pay-as-you-go" Byrd amendment to permit bond financing for the trust fund.
- Suspend the termination date of the Highway Trust Fund.
- Provide—as an interim solution—immediate ways and means to finance the anticipated deficits in the trust fund from 1960 through 1963.
- Provide adequate revenue to support the Highway Trust Fund to the conclusion of the program, using a Bureau of Public Roads' economic study, to be completed in 1961, as a basis.

• Congressmen answer—Sen. Francis Case (R., N. J.), of the Senate Subcommittee on Roads, expressed confidence that federal roadbuilding funds will be forthcoming. "This may be done," he said, "by increasing the gas tax, securing funds from the general Treasury, permitting the Highway Trust Fund to go into the market and sell short- or long-term obligations to meet actual cash requirements, or extending and readjusting the authorized roadbuilding program."

• ABC pushed too—ARBA also turned its attention to the ABC road system. The roadbuilders called for increased authorizations for the primary and secondary systems and their urban extensions to maintain a reasonable balance with authorizations for the Interstate.

The association would like to see federal appropriations for this program increased in increments of $25 million annually until they reach $1 billion a year by 1964.

• Other positions—ARBA will also:

- Urge Congress to extend the federal-aid airport program for at least five years with an authorization to obligate $100 million.
- Resist imports of federally owned surplus equipment from foreign countries, and resist the use of federal funds to locate aggregates for roadbuilding.

• Time and cost savers—In his report ARBA President Julien R. Steelman said, "A year ago, we were still worried that the engineering capacity of the industry and the difficulty in securing qualified engineers might be a serious limiting factor in the rate with which the program could proceed. But this threat no longer exists, because of the many timesaving and engineer labor saving techniques and procedures adopted by the engineering divisions of many of the states."

Standardization in bridge building shapes up as a big dividend payer.

Some 375,000 highway bridges are needed throughout the U. S., according to H. A. Radzikowski, chief, Development Division, Bureau of Public Roads. Over 45,000 of these structures are on the Interstate Highway System; over 150,000 are on other federal-aid systems; and nearly 200,000 structures are off the federal-aid systems.

Total cost of the bridge program would be about $32 billion. Consequently, a saving of only 1% on the nation's bridge requirements would amount to $320 million.

BPR has 69 electronic computer programs for high-speed bridge calculations, said Mr. Radzikowski, and they are made available to the state highway departments. Forty-two state highway departments and an even larger number of consulting firms are now using electronic computers in bridge and other engineering work, he said.

In the field of bridge standardization, Mr. Radzikowski said a number of bridge components are being studied. These include expansion dam devices, curb dimensions, railings, wearing surfaces, drainage details and types of piers.

• Temper savers—In a panel discussion, Rex M. Whitton, of the Missouri State Highway Commission, challenged state highway departments "to assume the leading role in planning and financing highways in urban areas." He urged state highway officials to maintain strong public relations programs to promote understanding and instill confidence between individuals, communities, and the state highway department. Such action will make an urban highway project more acceptable to those affected by its location, he said.

• New officers—The new president of ARBA is Nello L. Teer, Jr., head of Nello L. Teer Co., Durham, N. C. (see p. 52 for more about Mr. Teer) He succeeds Julien R. Steelman, president of the Kochring Co., Milwaukee—ARBA's president for the past two years.

New vice president of the ARBA is J. P. Moss, of Moss-Thornton Construction Co., Leeds, Ala. Re-elected vice presidents are J. F. McCracken, Bethlehem Steel Co.; H. L. Plummer, Wis-

homebuilders are prosperous and confident

consin State Highway Commission, and W. A. Bugge, Washington State Department of Highways. J. N. Robertson, District of Columbia director of highways, was elected treasurer.

The George S. Bartlet Award for 1958 was presented to Rex M. Whitton, chief engineer, Missouri State Highway Commission. The award, made annually since 1931, is given for "outstanding contribution to highway progress."

Confident homebuilders still want US help, reports ENR's Bob Stinson.

Prosperous and confident, a large part of the homebuilding industry surged into Chicago—and promptly got into a debate about what to ask of Uncle Sam.

Upwards of 34,000 attended the annual convention of the National Association of Home Builders, which set a new record for size and a possible record for optimism.

Conversation of individual builders in corridors, hospitality rooms and meeting halls held to one obvious point and one big surprise:

- Obvious point: This year will be better than 1958.
- Surprise: Let's not spoil it by asking Congress to go overboard on new federal spending programs for housing.

The unexpected strength of the latter sentiment was apparent at the board of directors' climactic vote for more federal aid. Approximately 300 ballots were cast at this closed-door session, and those favoring a slowdown in the government program reportedly came only about six votes shy of carrying the day.

Apparently, many builders are about ready to forego big federal aid programs just to keep from rocking the boat.

Most of the builders were happy with their 1958 business. Admittedly it was helped by the special assistance program for low-cost housing, passed by Congress primarily as an anti-recession measure.

This item, known as Special Assistance Program Number 10, provided $1 billion from the Treasury to Federal National Mortgage Association (Fannie Mae). The funds were used for purchase of housing mortgages insured by the Federal Housing Administration and those guaranteed by the Veterans Administration. Purchases are limited to mortgages in the range of $13,500 or less.

• **Veto a threat**—But now many builders feel that any housing bill containing the same type of aid would meet with a Presidential veto. Conviction on this point, however, is not unanimous, and a sharp split over another Program 10 came during the board meeting. A fight developed over the inclusion of such a recommendation in the association's policy statement and legislative goals for the year.

Opposed to another assistance program were most of the association's past officers and professional staff. But for it was new president Carl T. Mitnick, of Merchantville, N. J., whose words carried enough weight—and votes—to push the proposition through.

The statement itself does leave some room for compromise:

"Insistence on an unmarketable VA interest rate (4.75%) forces acceptance of proposals to correct recurrent instability in our industry by purchase of mortgages with federal funds."

Mr. Mitnick is more direct on this point. He says NAHB will definitely campaign for another $1 billion for Fannie Mae for purchase of VA and FHA mortgages.

However, something new is being added to this request. Last year, the special program was limited to mortgages of $13,500 or less, across-the-board. Now NAHB will request a special allowance for areas designated as high-cost. It will urge that the maximum allowable amount in those areas be at least $14,500.

Builders and NAHB officials opposed to this part of the association's policy say now is no time to ask for federal housing funds. They expect a good year. Congress and the Administration do too; so a request for funds probably wouldn't be well-received.

Many builders, however, apparently don't want to risk a veto. They are confident that even without housing legislation, they will do at least as well as they did in 1958. And for most, that was a good year.

Any housing legislation passed would make the market just that much better. Therefore, their desire is to get a bill acceptable to President Eisenhower.

According to builders, there is a powerful demand for housing. The public has the money to buy houses. And it is willing to spend savings and to assume mortgage debt.

For these reasons builders are planning to construct more houses than last year in all price categories. The largest increase, however, apparently will be in the $13,500 to $16,500 bracket. Several builders said they would abandon the $22,000 area to come into the $13,000 to $17,000 class.

• **Return to low-cost homes**—Many even said they would return to the low-cost field after having left it two or three years ago.

Although builders are not worried about being able to hit the mass, low-cost housing market, they are worried about their ability to obtain land for this housing. Their greatest problems stem from community opposition. All types of legal, zoning and building code obstacles are being placed in their path.

Among more common methods of blocking low-cost housing: boosting the minimum lot size; increasing the house's square foot requirements. Sometimes both blocks are thrown at the same time.

Some communities, builders report, have already succeeded in stopping construction of houses costing less than $16,000 to $17,000. They say the "disease is catching"; when one community takes up zoning steps, others eventually follow.

Generally, however, these problems will not interfere with builders' plans for the current year.

Close to their hearts now is the financing picture.

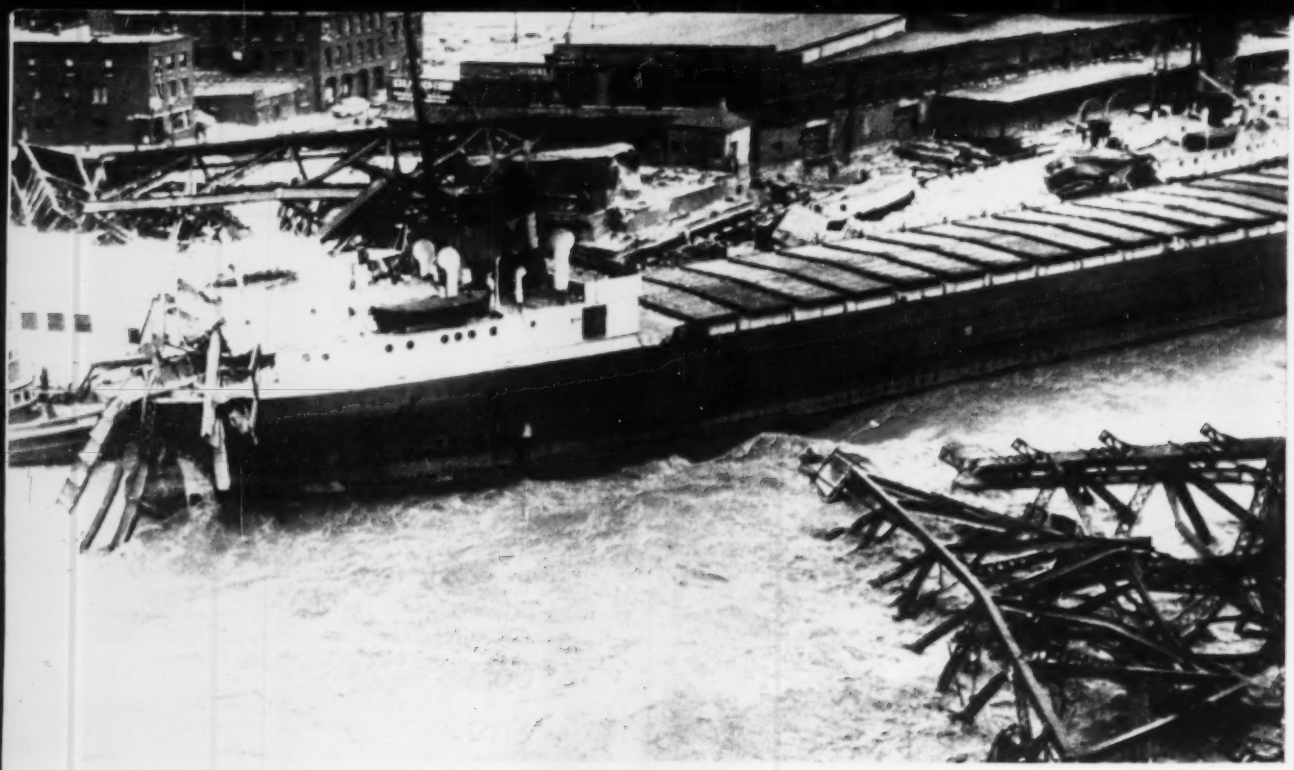
• **Financing needs**—NAHB will urge Congress to establish a central mortgage bank, operated as a government facility as an addition to the over-all monetary operation. It would have the power to:

- Buy mortgages.
- Make interim loans on the security of FHA and VA mortgages.
- Supplement operations of private pools of mortgage funds assembled through local and regional indentures trusts.
- Set the interest rate for FHA and VA mortgages.

The association also wants an increase in the maximum allowable VA mortgage interest rate.

Mr. Mitnick says the VA rate should have parity with the FHA rate. He says that increasing the VA interest rate from its present 4½% to 5¼% (the present FHA rate) would not penalize veterans who "would still be getting a break because they would not be paying the 1½% insurance premium required on FHA mortgages." (This amount is added to the FHA base rate of 5¼% for an effective cost to the home buyer of 5¾%.)

NAHB is urging that control of the VA interest rate be removed from Congress and that it be administered by the agency, as is FHA's interest rate.



Ship battered down a lift bridge at Buffalo after fast flood-current set vessel adrift.

Susquehanna River sprang huge leak in Pennsylvania mines.

Storms

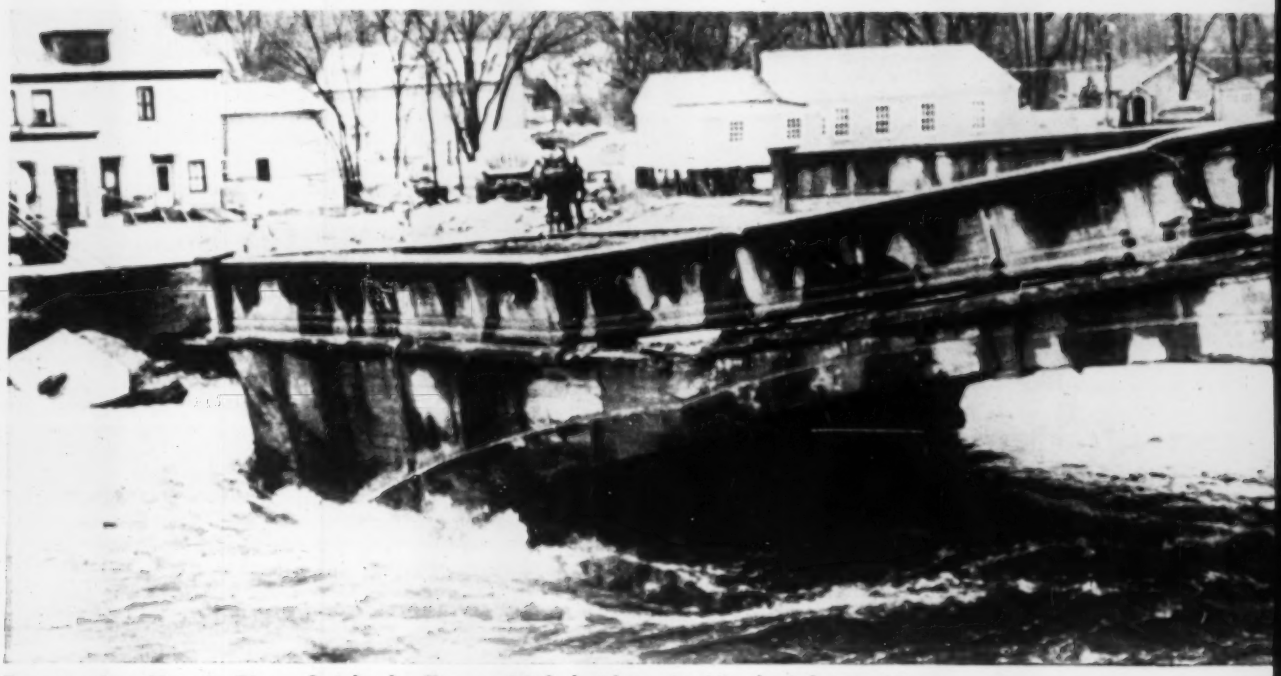
Wind, flood and ice left a trail of destruction through the East and Midwest last week.

Two ships adrift smashed a bridge in Buffalo. Gales and water wrecked two bridges in North Adams, Mass. Wind toppled two steel towers in Lexington, Ky. A dozen coal miners were missing in a water-breached shaft in Pennsylvania. Three highway bridges were washed out in Ohio. And thousands of people were forced out of flooded homes in Pennsylvania, Ohio, Indiana, New York and other states.

In Buffalo two grain ships broke loose from their moorings in the Buffalo River and demolished a 250-ft vertical-lift bridge. Two operators in a control booth at midspan failed in a last-minute attempt to raise the bridge clear. They had elevated the span 20 ft above its normal position (17 ft above water) when the impending crash forced them to jump from the span.

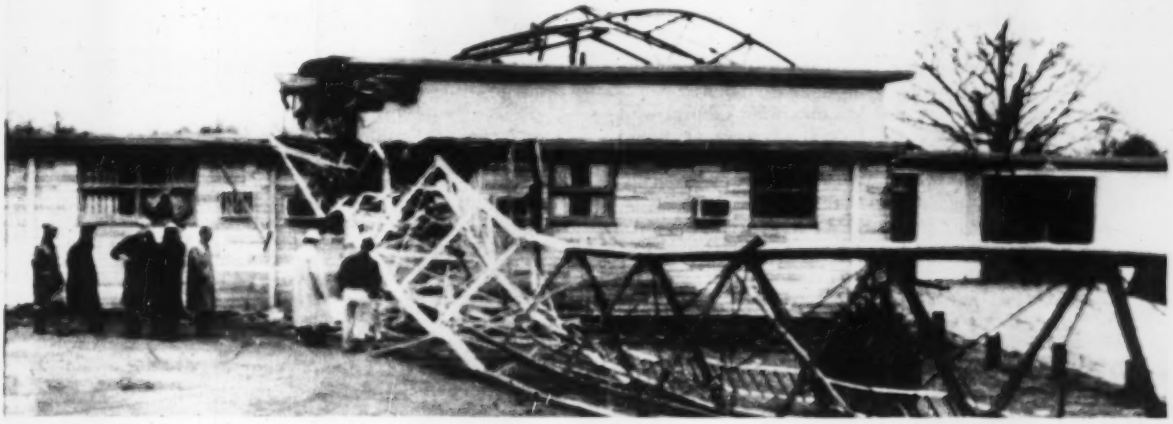
First of the ships to break loose, a 525-ft vessel, half-full of grain, drifted downstream and ripped loose the second, a 420-ft ship with a full cargo of corn. The second craft knocked the movable span into the water and wedged the first ship against the bank. Three minutes later, one of the bridge's 130-ft towers collapsed. Eight hours later the second fell.

Ice piling up behind the bridge



Rampaging Hoosic River finished off two 80-ft bridges in North Adams, Mass.

Wreak Havoc in Several States



Gales wrecked two steel towers and one of them sliced into a Kentucky radio station.

wreckage is raising water levels upstream, endangering other bridges in the city. Buffalo Creek Railroad ran a train of loaded coal cars out on one of the firm's steel deck-girder bridges to weight it down against the flood.

Demolition crews with torches and cranes are struggling to remove the wreckage. The city also has a wrecking crew breaking up ice packs.

In North Adams, Mass., high water and ice beat bridge-wrecking crews to two jobs. The storm-swollen Hoosic River took out an 80-ft concrete-arch bridge and an 80-ft steel-truss bridge.

Army Engineers have finished about two-thirds of a 10-year, $18.5-million fight against the Hoosic in North Adams, including a super-elevated, high-velocity floodway, stilling basins, and a low-velocity floodway. A single bridge replacing the two washed-out spans is almost complete.

In Port Griffith, Pa., flood waters washed a hole in a coal-mine tunnel under the Susquehanna River and trapped 12 men. Flow was almost stemmed by Monday—with more than $2 million worth of railroad cars, equipment and material dumped in the hole.

In Lexington, Ky., two steel towers toppled in a high wind. One tower was a 500-ft high short-wave radio transmitter of the Kentucky Highway Department; the other was a nearby 67-ft transmitter for Station WLEX-TV.

The TV tower fell across the one-story broadcasting studio, cutting it in half. A receptionist was killed and two

other persons were injured. Damage is estimated at about $500,000.

The radio transmitter was a 14-year-old, four-leg, free-standing tower. Square in cross section, it tapered almost to a point at the top.

The TV transmitter, about 100 ft away, was a 4-year-old, three-leg, guyed tower. Reported to have been designed to withstand winds up to 125 mph, it was secured by 15 guys arranged in three groups of five each. Steel wires in each group shared the same anchorage at ground level but were attached to the tower at different heights.

Wind velocity at the time the towers fell was estimated at from 70 to 80 mph.

Whither Public Works?

Despite the fuss and feathers, the President and the Democrats foresee expanding public works—they differ on what is a desirable growth rate

A picture of the nation bursting at the seams—pressing for new growth in practically every type of public construction—emerges from the battle of the budget in Washington.

Partisan feuds grab the headlines. But underneath is a broad agreement between President Eisenhower and the Democrats in control of Congress.

Both say the nation is growing and that public spending for construction must also grow—for years into the future, with no end in sight.

The quarrel is over how fast this growth should be.

"Let's take a breather," the President is saying.

"Now is no time for a breather." Democrats reply. They cite Russia's growth rate, which is exceeding our own. They cite sticky unemployment despite the business rise out of the recession. They press for quick action to supply new facilities that the President says must be postponed in the interests of a balanced budget.

But look at what the President actually is doing.

He is not trying to cut total public works spending. He hopes only to slow down the rate of growth. This year, for example, civil public works expenditures are running $1.4 billion above last year. In fiscal 1960, he says, the growth should be only half as much.

President Eisenhower also has one other quarrel with the Democrats. He says the federal government should force the states and localities to assume more of the burden of financing public works that now get federal aid. This argument has been going on ever since Mr. Eisenhower has been in office; but the federal share of federal-state programs has continued to rise.

Behind the budget maneuvers by both the President and the Democrats are two basic facts, both of long-term significance to the construction industry:

- **Federal spending is on a long-term rise.** The most President Eisenhower is shooting for is a temporary dip below the current level of more than $80 billion a year. After a breather, he sees the rise resuming—caused chiefly by the pressure of public construction needs.
- **The old idea of using public works as a major weapon against swings of the business cycle is practically dead.** A "basic need" philosophy is taking its place.

The new idea is to plan public needs on a steady, continuing basis and then provide the necessary money no matter what business in general is doing.

In the President's economic report to Congress he points to the futility of trying to rush new public works projects into being as a means of combatting a recession. He refers in particular to how the economy climbed out of the recession last year.

Housing, he stresses, was the most effective anti-recession weapon. It was impossible for big new construction projects to be launched in time to help.

But more important right now to construction is the reverse side of the "basic needs" policy. What about cutting construction outlays in periods when inflation is a major worry, and thus trying to slow down the business cycle on the up-swings?

To this President Eisenhower is also saying "no," despite his conviction that inflation is our greatest peril.

Slow down—yes.

Cut back—no.

Thus the great public works underpinning of the construction industry is gaining a new stability, and a new importance in long-term planning.

"Planning has become an indispensable feature of living in this complex age," President Eisenhower recently told the Association of State Planning and Development Agencies.

"Just to keep our present standard of living," he pointed out, "we continuously need more houses, more schools, more hospitals, more streets and water supply systems, more waste treatment and air pollution works, more parks." All this to supply the needs of a population growing by three million a year.

In the State of the Union Message the President spoke of a 190-million population in a few years.

Sen. Lyndon B. Johnson, Democratic leader in the Senate, in a speech outlining the nation's needs, referred to a 200-million population and a trillion-dollar economy—both coming soon.

The great need, both men say, is for a sensible measuring of future requirements. Both call for studies to be conducted by experts from civilian life, looking five and ten years ahead. Both talk about setting new national goals to guide the growth they see ahead.

Both studies are in the planning phase—the President is planning one, the Democrats another. Each study will quickly come to grips with public construction, and each will stress the "basic needs" approach.

The disagreement will be over rates of growth.

President Eisenhower will continue to argue that growth can be so fast as to be harmful in the long run.

Democrats will argue that we must accelerate or risk becoming a second-class power. They will be willing to risk inflation to avoid what they call greater dangers.

In this basic issue, construction will play a vital role.

The sums appropriated for public works, and the speed with which projects are pushed, will each year become major areas of political conflict.

It is the major economic issue splitting the parties in Washington today. And by every sign, it will continue to be a major issue into the indefinite future.

New School Code

Illinois locks barn door; adds safety requirements

Illinois has made changes in its fire code for schools that will mean at least one or two alterations in most of the state's schools and extensive changes in some older buildings.

The code was revised under pressure after the tragic Chicago school fire. It requires the following in every existing school building:

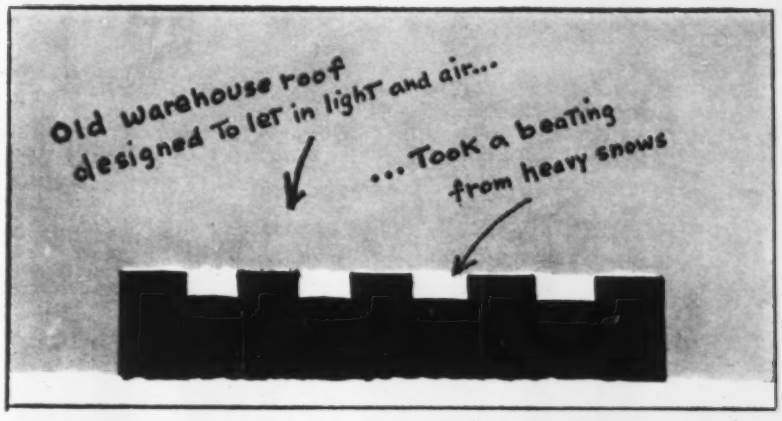
- A standard fire alarm system by next December.
- Completely enclosed stairwells that are sealed off with one-hour fire-resistant material.
- Noncombustible acoustical materials. (This outlaws wood fiber acoustical materials, formerly permitted.)
- Walls and partitions with a one-hour fire rating.
- Adequate exit signs, fire escape signs and directional signals. (Electrical signs must operate on an electrical circuit separate from other lighting.)
- Noncombustible, two-hour, fire-resistant floors over basements; first floor ceilings of mineral acoustical tile backed by noncombustible materials if ceilings are suspended; upper story flooring with a one-hour fire rating.
- Furnace rooms separated from other rooms by fire doors and equipped with fire-resistant walls and ceilings.
- Self-closing exit doors that open outward (excepting boiler room doors, which must open inward).

In addition, automatic sprinkler systems "shall be installed in every school building which has a fire area, a type of construction or occupancy which makes such installation necessary." Since the state has no architectural codes for schools, it is up to the fire marshal to decide whether schools require sprinklers. One official estimates under 1% of the schools will have to install them.

Some confusion exists as to what areas will come under the new code's jurisdiction. Deputy Fire Marshal J. W. McFarland said he thought the code could be made retroactive to existing structures without new legislation, because the fire marshal is empowered to correct any violations.

However, Joseph D. Bibb, state public safety director, says the revised code will be mandatory for construction of new schools in unincorporated areas of the state—but not for new buildings in incorporated areas and not for existing structures.

Chicago, meanwhile, has set out to make its schools safer with or without confirmation of the state code. The City Council passed three fire safety ordinances, the first of several that will overhaul the city's fire code.



U.S. Pays $1-Million Repair Bill

The U.S. government has just spent over a million dollars repairing a Buffalo, N. Y., warehouse built in 1916 and used now by the General Services Administration. Roof repairs and modifications because of snow-load damage came to $3.10 per sq ft.

Over the years, steps of the warehouse's "monitor" roof became snow traps.

Last winter proved too much. In several sections, some 500-ton loads of trapped snow snapped 12 x 12-in. beams of the old wood roof frame and threatened to collapse the sprawling, 27-acre warehouse. Temporary supports held up the roof until this fall.

Government engineers inspected the roof and made a repair allocation. The job was let to John W. Cowper Co., Buffalo, and work finally got under way in September, 1958.

Pushing, the contractor finished the job by December 15. The project involved framing across 362,500 sq ft of the monitor bays, building a second flat roof over the original one, and strengthening and replacing damaged framing in the structure.

Originally built by Curtiss Aircraft Co., during World War I, the warehouse has changed hands several times over the years, passing in and out of government control. Bell Aircraft used it through World War II.

GSA has talked about replacing it but isn't considering the move now—too expensive.

Oil Money May Pay Water Bill

California's new governor last week presented the state legislature with a sweeping $658-million water plan.

It's time to "start moving dirt and stop throwing mud," Gov. Edmund G. Brown told the lawmakers. He called for setting aside the "narrow, sectional differences" that have balked progress towards solution of the state's critical water problems.

A lawyer himself and formerly state attorney general, the governor later said, "It's time to take water development out of the hands of lawyers and put it in the hands of engineers. . . .

"I know engineers can build water works. I know lawyers can delay things."

The governor pointed out that lawyers have been trying for eight years to reach a north-south agreement on water rights questions, declared he didn't want to delay the water program further while lawyers fight over a constitutional amendment.

Governor Brown proposed:

- Immediate appropriation of $38 million from a state fund built up from tideland oil revenues.
- Commitment of the entire fund to water development. (The fund will reach $158 million by mid-year.)
- Authorization in 1960 of a $500-million general obligation bond issue to complete the program.
- Additional appropriations later in the session for projects now under study.

The governor said he did not believe a constitutional amendment on water rights was necessary.

"I am not hostile to an amendment, and I am not closing the door on one," the governor said. "But I am convinced that our positive program of water development should not be delayed by further frustrating debate over the terms of a constitutional amendment."

He outlined no formula on water rights. "As long as the legislature guides our water development, we can be certain that the system will be completed and administered in fairness and equity," he said.

Anchorage Getting Two Big Ones

The Alaskan building construction boom isn't coming—it's here.

Two 11-story buildings—one a hotel, the other an office building—will be started this spring in downtown Anchorage.

Expected to cost $10 million, the pair of buildings will provide 200 hotel rooms and 130,000 sq ft of office space. The ground level, with an arcade joining the two buildings, will have 45,000 sq ft for stores and restaurants. Basement and subbasement parking areas will hold 300 autos.

Most of the city's present hotels are wood frame; all have less than 100 rooms.

The new buildings will be steel frame construction on a 140 x 460 ft site. Year-around air conditioning is included in the plans (it gets hot in Alaska too); windows will be double-paned insulating glass. Exterior walls will be panel units of white and gold anodized aluminum.

Michael T. Halbouty, of Houston, and Walter J. Hickel, of Anchorage, are the developers (ENR Dec. 11, 1958, p. 115). The architect-engineer is Hedrick & Stanley, of Houston, in association with Edwin Crittenden, of Anchorage.

There has been little major commercial construction in Anchorage during the last 10 years. Largest office buildings are under 40,000 sq ft and usually only two or three stories high.

Now, Anchorage and Fairbanks architects are swamped with work.

Other Anchorage projects planned include a $700,000 medical-dental clinic and consolidation of two existing hotels, plus additions, into an almost new, block-large building that will provide 600 rooms.

A federal building, state mental hospital and cooperative apartment building are also in the planning stages.

In Fairbanks, an $800,000 co-op apartment house is planned. Due for completion this year are a $500,000 bakery, a $200,000 indoor swimming pool, a new school and a shopping center.

Canada Builders See Big Year

Another boom year for Canada's construction industry was predicted last week at a meeting of the Canadian Construction Association in Montreal.

H. J. Ball, retiring president of CCA, estimated 1959 construction volume will amount to about $7.5 billion, twice the peak year of World War II.

Mr. Ball advised CCA members to expect intensified competition and keener prices during the coming year.

A large part of the 1959 volume will come from housing. More than 150,000 starts are expected this year. About half of them will be built with some type of federal help.

Maj. Gen. Hugh A. Young, deputy minister of the federal government's Department of Public Works, which works closely with CCA, was one of the principal speakers.

General Young said $150 million would be spent on "roads to resources" as a means of opening up Canada's northern areas.

Winter construction was advocated in many speeches as a way of leveling out seasonal unemployment.

The Federal Department of Public Works will do 30% more work this winter than was done during the winter two years ago, said General Young.

Eric Harrington, President of Anglin Norcross Ltd., general contractors of Montreal, was elected president of CCA. Mr. Harrington's father, Conrad Harrington, held the same office in the association 20 years ago.

Aluminum Bridges

New York highway to get two for grade separations

Fabrication of two riveted and bolted aluminum highway bridges for New York's Long Island Expressway was subcontracted last week to Pullman-Standard Car Manufacturing Co.

The bridges will carry the expressway over the Jericho Turnpike in Nassau County. One will be 76 ft long and 128 ft wide; the other will be 76x135 ft.

Girders and diaphragms are to be individually fabricated at the shop and assembled at the bridge site. The general contractor will erect the bridges.

The 78½-ft-long girders are to be made up of aluminum plate webs and extruded aluminum flanges. Angles for the lower flanges are believed to be record-size lengths of heavy-press aluminum extrusions for nonmilitary U. S. use. They measure 8x7 in., are a maximum 1¼ in. thick and weigh 18.7 lb per lin ft. Kaiser Aluminum & Chemical Sales, Inc., will supply them.

The two bridges are part of a $4.4-million general contract for 2.2 miles of expressway held by Hendrickson Bros., Inc., Valley Stream, N. Y. Engineer for the project is Andrews & Clark, New York City. Builder is the New York State Department of Public Works.

Traffic on Chicago Road Really Gets Hung Up

The unique divider system on Chicago's Lake Shore Drive put some 150 motorists in a unique position last week—they were suspended.

The dividers rise hydraulically to separate north and southbound lanes. But last week, in the midst of a furious snowstorm, they not only rose hydraulically, they rose unexpectedly.

Motorists either ignored or were unable to see the warning lights (placed at intervals along the strip where the dividers rise).

At any rate, 150 of them were hopelessly hung up atop the dividers—also hung up was all traffic on the drive in one of the Windy City's worst traffic foulups.

The incident may mark the beginning of the end for the divider system. It has required a lot of repair because of leaks in the hydraulic mechanism and trouble with the jacks.

The system is in operation for a two-mile stretch on the north leg of Lake Shore Drive. It was conceived and installed in 1940 by Park District engineers. The city assumed control of Lake Shore Drive in a consolidation with the Park District. A crew of six men tends the dividers.

Vacuum shell covers world's largest private research reactor.

'Swimming pool' houses the fuel.

It's a Beehive of Atomic Research

The world's largest privately owned research reactor went into operation last week in Plainsboro, N. J., site of a $4.5-million research center.

Industrial Reactor Laboratories, Inc.—a combination of 10 companies, all from different fields—built the center on a 300-acre site.

The center includes five main structures: the reactor, a laboratory and office building, underground pump house, a service building, and cooling towers for the water and air conditioning systems.

The reactor is housed in what looks like a beehive—an aluminum-sheathed, 87-ft-high concrete dome.

The dome is constructed of 8- and 12-in.-thick concrete walls in the lower portion and 3-in.-thick sprayed concrete in the upper part. Outside, it's enveloped with roofing felt, glass-fiber board, and 16-gage aluminum.

A slight vacuum is maintained inside the dome by a pumping system to prevent loss of active material in case of an accident.

The reactor is a swimming-pool type with 5-million-watt capacity. The core fuel consists of 40 elements, each with 18 plates, totaling about 4.5 kg of enriched uranium.

The 30-ft-deep pool has walls 11 to 10 ft thick. The bottom 15 ft of the walls are heavy-aggregate, 2,500-psi concrete weighing 235 lb per cu ft. (Magnetite is the aggregate for this concrete.) Upper pool walls are regular 2,500 psi concrete. The pool holds 136,000 gal of demineralized water, which acts as a moderator, cooler and shield.

Control room and operating console are at the 30-ft level, just over the pool. At the 60-ft level is a 12-ton-capacity crane spanning 64 ft across the dome. It has a 360-deg travel on a circular rail.

Experiments are carried out at the base of the reactor through ports that open into tubes. The tubes extend through the water within various distances of the core. A dry chamber is provided with an 16-ton steel and lead door.

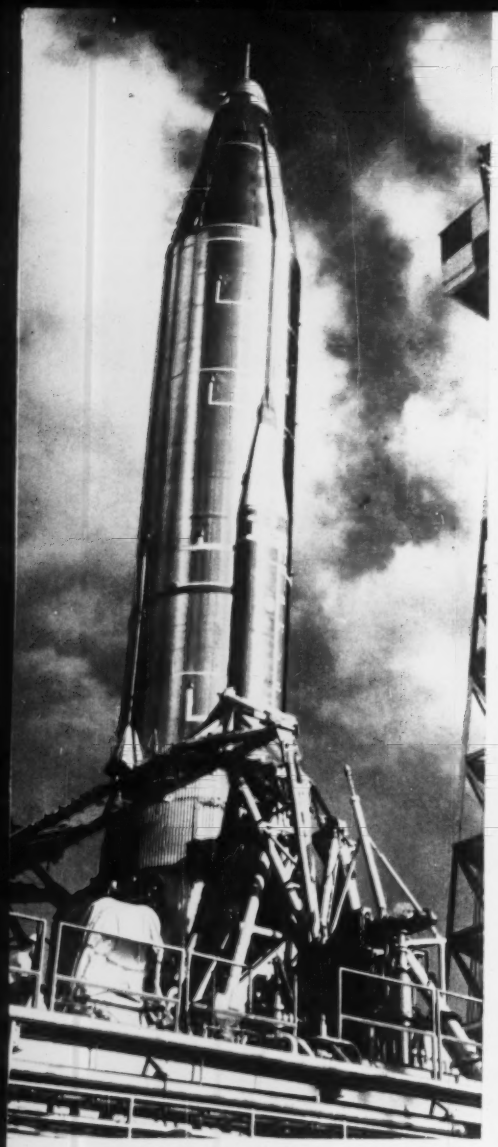
Three "hot cells" are built into the lab. Experiments are conducted inside these chambers by remote-control manipulators. The operator looks through 3-ft-thick leaded-glass windows to see what his "hands" are doing.

American Machine & Foundry Co. was prime contractor and designed the reactor. Skidmore, Owings & Merrill is the architect. The structural engineer is Severud, Elstad & Krueger. Turner Construction Co. was the general contractor. All are New York City firms.

The 10 companies making up Industrial Reactor Laboratories are American Machine and Foundry Co., American Tobacco Co., Atlas Powder Co., Continental Can Co., Corning Glass Works, National Distilleries & Chemical Corp., National Lead Co., Radio Corp. of America, Socony Mobil Oil Co., Inc., and U. S. Rubber Co.

A permanent staff of 30 to 40 scientists and technicians operate the center. The companies also maintain individual laboratories.

ICBM: Now the Accent



ATLAS: Ready by mid-1959

The Air Force's big program of base construction for intercontinental ballistic missiles is going to get even bigger. Each succeeding missile requires more complex base construction; and the missiles become obsolete almost as soon as they become operational.

The first of six ICBM bases will become operational this year and additional installations are expected to be authorized by the end of the year.

Vandenberg Air Force Base, Lompoc, Calif., probably will be the first Atlas base to be ready for use. Vandenberg (formerly Cooke AFB) has been under construction since June, 1957 (ENR Feb. 27, 1958, p. 30) and costs are running to $60 million so far.

In addition to being an operational Atlas ICBM site, Vandenberg is also designed as an IRBM–ICBM training installation and as a launching site for military and scientific probes.

Five other ICBM bases are under construction or authorized: Francis E. Warren AFB, Wyo.; Offutt AFB, Neb.; Fairchild AFB, Wash.; Forbes AFB, Kan., and Lowry AFB, Colo.

Forbes and Lowry probably will be designed to launch the Titan ICBM. This missile is more advanced in terms of range, guidance and thermonuclear payload than the Atlas. But it is more than two years away from operational status. Plans call for construction of only two more Titan bases in addition to Forbes and Lowry. No more than five more Atlas ICBM bases are scheduled to be built.

In all, 13 ICBM bases, each supporting a 10-missile squadron, are now planned. There are reports that the Department of Defense is campaigning to increase the U.S. ICBM strength to nine Atlas squadrons and 11 Titan squadrons. But the Pentagon refuses to confirm the rumors.

A striking and expensive aspect of the ballistic missile program is the speed with which weapons become obsolete. The Atlas will not be ready for use until the middle of the year and the Titan won't be operational until late 1960 or early 1961. Nevertheless, their obsolescence is already in sight.

The Air Force is now thinking of the solid-fuel Minuteman, a weapon hardly off the drafting table, as its major strategic weapon of the future.

But production of the Atlas and Titan must continue. The demands of world strategy make it impossible for the U. S. to put off its missile armament program until the current "ideal weapon" is ready for the assembly line.

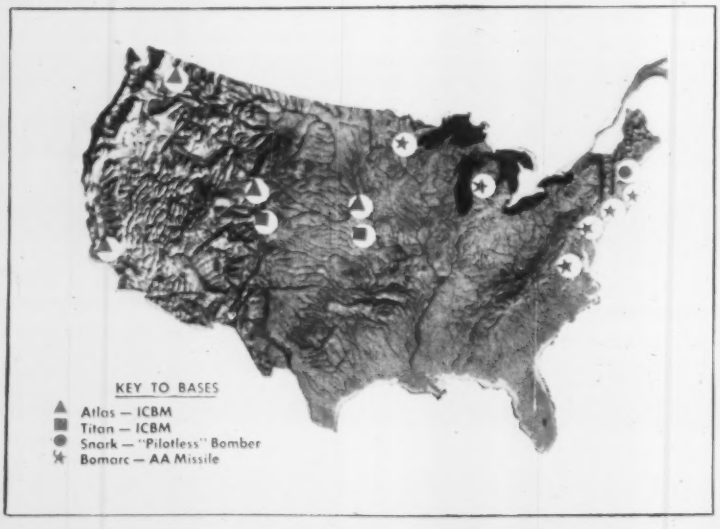
Because it will be powered by solid fuel, the Minuteman will be easier and cheaper to operate and produce than the liquid-fuel Atlas and Titan missiles.

The Minuteman will be "as easy to launch as a Fourth of July rocket." The solid fuel eliminates the lengthy and dangerous fueling-up that precedes the firing of the Atlas and the Titan.

In addition, the Minuteman will have a faster response time and about the same range, approximately 6,500 miles.

Scattered launching sites for the 60-ft Minuteman are being planned. But the missile won't be operational for four years. Construction awards for these sites are still some time away.

The missile projects are reshaping the over-all military construction program



Here's a Count Down

Only two of the six authorized ICBM bases are near completion, Vandenberg AFB and Warren AFB. Construction of the others is in early stages or not begun. Here's the picture:

- **Vandenberg AFB, Lompoc, Calif.** Total value of contracts awarded so far is $60 million. Ultimate cost will be about $100 million. Work was begun in June, 1957 and will be completed in mid-1959.

- **Francis E. Warren AFB, Cheyenne, Wyo.** More than $51 million has been authorized to date for construction. Entire project may cost $65 million. Some $20 million worth of contracts will be awarded this year. The base will go into partial use next year.

- **Lowry AFB, Denver, Colo.** Funds authorized to date amount to $1.5 million. Final cost will be some $85 million. Contracts for 1959

Is on Construction

in terms of dollar allocation. As the rate of other military construction spending drops, the missile's share of the military construction dollar will rise.

Of the $2 billion allocated for military construction in the current fiscal year, about one-third—roughly $660 million—is going into missile base construction, according to a Pentagon construction official. In fiscal year 1960, which begins July 1, military construction spending will drop to about $1.7 billion. But the missile portion will rise to about 40% of the total, some $680 million.

Minuteman bases will accentuate a military trend toward higher-cost facilities to support lower-cost weapons.

It used to be axiomatic that a weapon cost far more than the facility that supported it. A wing of B-47 medium-range bombers, for example, might demand an expenditure of $160 million for the airplanes and only $30 million for the field at which they were based.

Ballistic missiles are reversing the situation. The facility costs more than the weapon. The cost ratio is almost the opposite of what was considered the rule for piloted aircraft.

Bases for the liquid propellant Atlas and Titan missiles will cost as much as $100 million.

These installations include concrete launching stands, equipment for fuel storage and loading, launching control stations, guidance control stations, a power plant, a water-pumping plant and a missile assembly building. Unit production cost of the 4-ton Atlas will run to about $1 million, not counting costly ground support apparatus.

While most of the Atlas and Titan sites will be "soft" bases (built above the ground), the Minuteman installations will be "hard" (below ground). As a result, the savings in fuel storage and handling facilities will be offset by the added cost for underground building. Minuteman sites probably will cost more to build.

For the most part, construction of the Army's bases for Nike anti-aircraft rockets has been completed. Well over 70 installations have been built around the U. S. since 1953.

Some of the Nike bases are being modified to handle the more advanced Nike-Hercules anti-aircraft defense missile. But construction costs for this activity are minor.

The Army is developing the Nike-Zeus anti-missile missile, which could set off a new billion-dollar round of base construction. But this weapon is still several years from operation status.

The Air Force plans no further construction of bases for the Snark intercontinental missile, essentially a pilotless bomber. One base is being built at Presque Isle, Maine. The Air Force is also setting up sites for launching the jet-powered Bomarc anti-aircraft missile at existing bases—McGuire AFB, N. J., Suffolk County AFB, N. Y., Otis AFB, Mass., and Dow AFB, Maine.

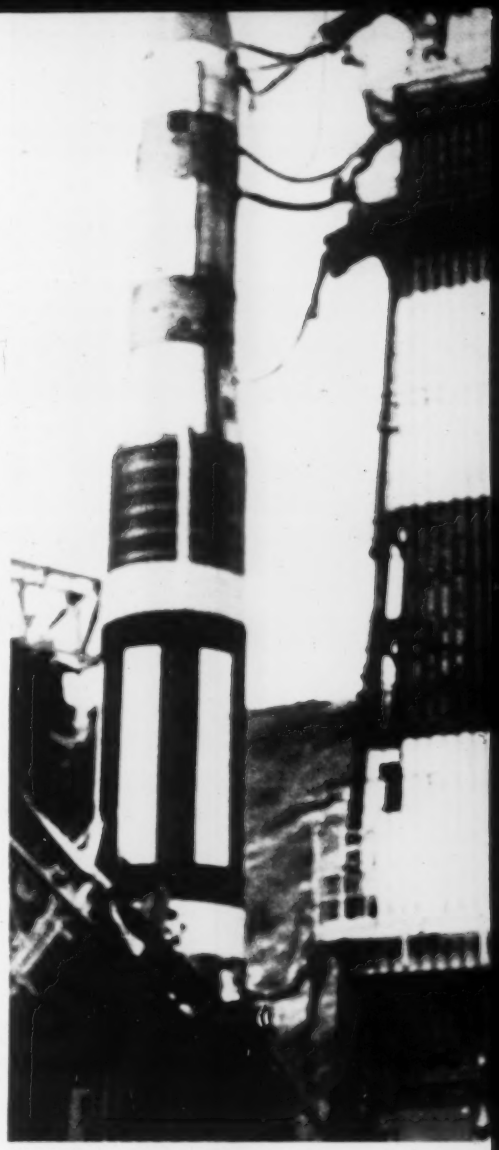
Defense appropriations for fiscal 1959 authorized construction of 10 more Bomarc sites. So far, the Air Force has been allowed to begin work on only three: at Langley AFB, Va.; Duluth Municipal Airport, Minn., and Kinross AFB, Mich. The status of the other seven Bomarc sites is not known.

The only other substantial missile construction program is for the overseas-based Air Force Thor and Jupiter intermediate-range ballistic missiles. (IRBM effective range is about 1,700 miles.) One Thor base is already operational in Great Britain and three more are planned for that country.

Total costs of the bases will be about $90 million. Britain will pay for much of the material used. At least four other IRBM bases are planned for Europe. But several political differences with France and other NATO allies must be resolved before construction can begin on these installations.

Despite the Air Force's impressive ICBM progress, the bomber bases of the Strategic Air Command will continue to be the backbone of U. S. nuclear striking power through most of the next 10 years, officials believe.

"ICBM's will supplement, but not supplant manned bombers in the foreseeable future," says Gen. Thomas S. Power, SAC commander-in-chief.



TITAN: Two years away

But airplane base construction will wane in coming years. Last year Congress appropriated $66 million to complete "current requirements for full dispersal" of 33 B-52 long-range bomber squadrons to 33 installations.

It also voted $80.9 million to "complete substantially the construction needed for achievement of the 15-minute response capability as currently planned." This involved funds to modify aircraft parking aprons and other facilities to step up SAC's alert status.

The new Air Force budget, however, will include funds for procurement of some 50 additional B-52 bombers. It is possible that further bomber base construction will be contracted out next year.

The Air Force has 70 squadrons of fighter-interceptor planes in the U. S., including Alaska. The number of these squadrons will be reduced as Bomarc

On the ICBM Bases

will be valued at $40-$50 million. Completion date is classified.

- **Forbes AFB, Topeka, Kan.** Total authorization so far is $29.7 million. The first increment of work is scheduled for advertising early this spring and the second for late spring or early summer.

- **Offutt AFB, Omaha, Neb.** Authorized funds total $25.5 million. First increment of work will be advertised in February. Value of 1959 contracts will be $20-30 million. Unofficial date of occupancy is 1961. Project consists of three launch batteries to be located in area.

- **Fairchild AFB, Spokane, Wash.** First general construction contracts are scheduled for July. No other information on the plans is available.

New Optical Plummet Built into Gurley Transit Saves Set-up Time, Improves Accuracy on Windy Days

Years ago, Gurley introduced lightweight instruments to combat wind vibrations. Now Gurley further beats the wind problem with an optical plummet *built into* the instrument.

The new Gurley Optical Plummet Transit eliminates swing and sway of the cord and plumb—always time-consuming and exasperating on a windy location, and inaccurate as well. Positive accuracy of set-up is assured with the Gurley Optical Plummet.

The new Gurley transit is furnished with a tripod with built-in shifting head, and allows a two-inch shift of the instrument over the point. This provides greater latitude in initial set-up.

Gurley's new Optical Plummet Transit offers one of the advantages of the optical-reading theodolite *plus* the desirable features of simplicity and universal acceptance of the American transit. For further details, ask for Bulletin OP-100.

GURLEY

W. & L. E. GURLEY Union Plaza, Troy, New York

Gurley—Since 1845

. . . ICBM bases

units become operational. The outlook is for a halt in construction of bases for these planes.

Next to missiles, the biggest portion of the military construction dollar is earmarked for air defense.

Last year $125.2 million was appropriated for 13 Air Force aircraft control and warning stations. The Air Force got $41.1 million for four installations of its SAGE air defense control system and five more are planned. The early warning radar lines and the Army's missile master control system are also receiving heavy allocations.

The Distant Early Warning line along the Arctic Circle is being extended eastward, bringing total construction costs for the system to $383 million. Including electronic and other equipment costs, the DEW line's ultimate cost will be $1 billion. Operating expenses: about $200 million annually.

The Air Force has also begun work on the Ballistic Missile Early Warning system (ENR July 17, 1958, p. 23). Congress voted $189 million last year to start construction at sites in Greenland and Alaska. Total cost of the two-site BMEW system, which will go into operation in 1960, is estimated at $800 million. At least $375 million will be spent for construction.

Who's Constructing The Missile Bases?

Here are some of the principal designers and builders of ICBM bases:

• **Vandenberg AFB—Architect-engineers:** Holmes & Narver Inc., Los Angeles; H. K. Ferguson Co., Cleveland; Daniel, Mann, Johnson, Mendenhall & Associates, Los Angeles; Aerojet-General Corp., Azusa, Calif.; and Welton Beckett & Associates, Los Angeles.

Contractors: Fredericksen, Kasler & Stolte Construction Co., Fontana, Calif.; Utah Construction Co., Salt Lake City; Manhattan Construction Co., Muskogee, Okla.; P. J. Walker Construction Co., Los Angeles; Matich & Sundt, Colton, Calif., and Robert Genofile, Inc., Montrose, Calif.

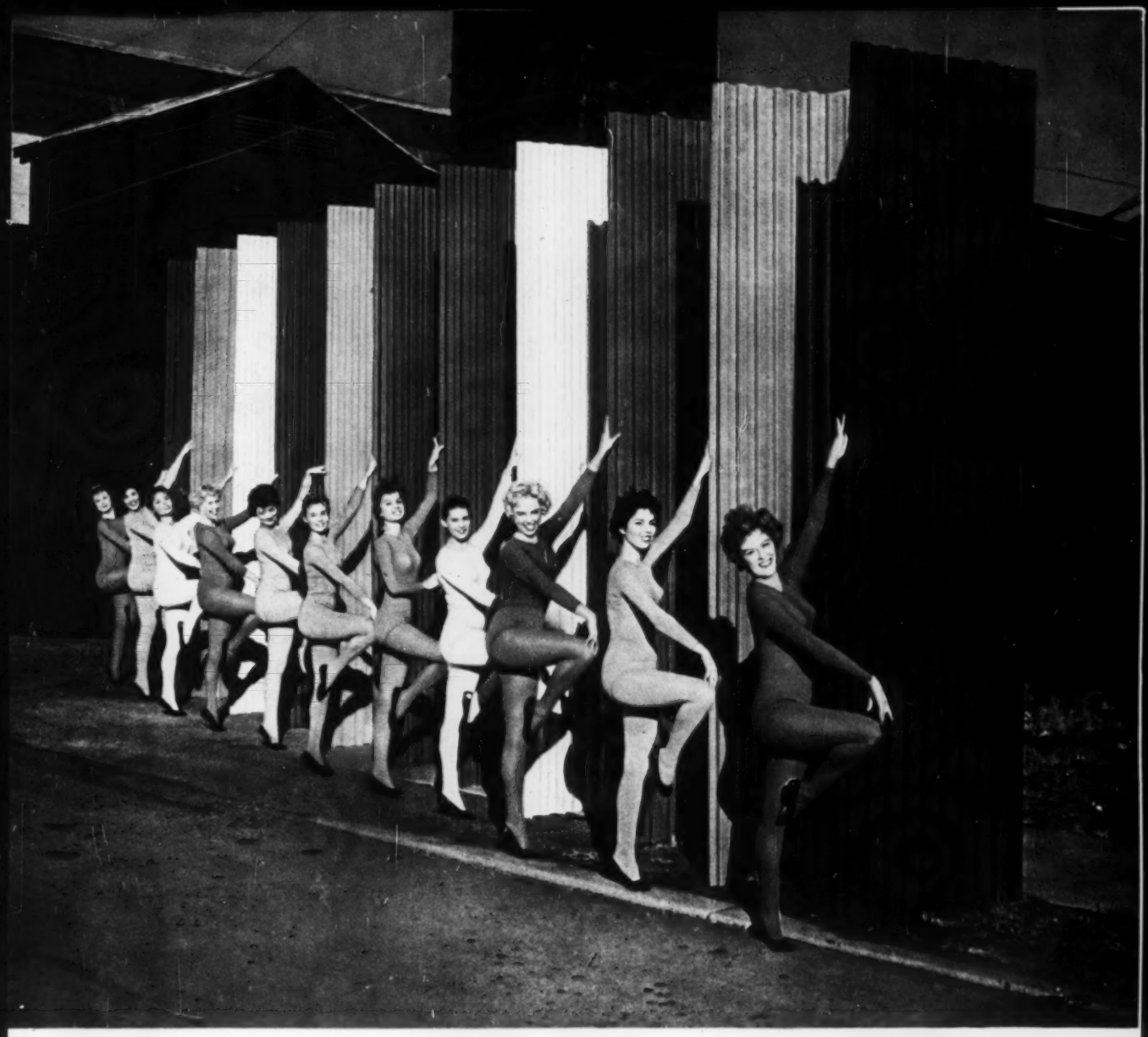
• **Lowry AFB—Architect-engineers:** Daniel, Mann, Johnson, Mendenhall & Associates, Los Angeles, in association with Leo A. Daly Co., Omaha; Rust Engineering Co., Pittsburgh, and Mason & Hanger—Silas Mason Co., New York and Shreveport.

Contractors: Northwestern Engineering Co., Denver.

• **Offutt AFB—Architect-engineer:** Black & Veatch, Kansas City.

• **Forbes AFB—Architect-engineer:** Bechtel Corp., Los Angeles.

• **Fairchild AFB: Architect-engineer:** Bechtel Corp., Los Angeles.



Copacabana Chorus introduces Alcoa Alumalure

New Alcoa "Alumalure"...
exciting beauty for buildings at low cost!

No more drab buildings now that new Alcoa® Alumalure is here. Alumalure* introduces color for aluminum-clad buildings at remarkably low cost! Alumalure adds the showplace appeal of 11 standard baked enamel colors to all the traditional advantages of building with aluminum—light weight, corrosion resistance, economy. It has endless possibilities. You can specify Alcoa Alumalure now for plants, schools, shopping centers and many other building types. Build a showplace at low cost. Contact your nearest Alcoa sales office today for complete information!

SEND FOR COLOR-SWATCH FOLDER!

See all 11 exciting colors in the color-swatch folder that's yours for the asking. Call your nearest Alcoa sales office or write on your company letterhead to: Aluminum Company of America, 2067-A Alcoa Building, Pittsburgh 19, Pennsylvania.

ALCOA ALUMINUM

Your Guide to the Best in Aluminum Value

Specify Alumalure!

**Trademark of Aluminum Company of America*

"Trial-and-error digging is a dog's life"

How do leading firms and salesmen avoid 'cold' prospecting?

In the new construction market, they use *Dodge Reports* to pinpoint *active* prospects . . . and guide the timing of sales calls.

Dodge Reports are mailed daily — directly to you or your salesmen. They tell who's going to build what and where. *You* specify the areas and types of construction you want covered. For each project, Dodge tells you whom to see . . . when bids are wanted — and even who else is bidding . . . anywhere within the 37 Eastern States.

Let Dodge show you how you can avoid missed or mis-timed opportunities . . . how you can concentrate on jobs you know will be profitable . . . how you can end the nuisance of 'cold convassing' . . . how you can cut sales costs and boost salesmen's morale and earnings.

WRITE FOR FREE BOOK

F. W. Dodge Corporation, Construction News Division,
119 West 40th Street, New York 18, N. Y., Dept. ENR19

Send me the book "Dodge Reports: How To Use Them Effectively" and let me see some typical Dodge Reports for my area. I am interested in the general markets checked below:

☐ House Construction ☐ General Building
☐ Engineering Projects (Heavy Construction)

Area _____
Name _____
Company _____
Address _____
City _____ Zone _____ State _____

ENR asks a top construction educator, Clarkson H. Oglesby, this key question . . .

Are We Making Progress In Teaching Construction?

College training in construction management has been receiving increased emphasis. But many believe progress has not kept pace with the demands of an increasingly complex industry.

To find out about current progress and pitfalls ENR interviewed Prof. Clarkson H. Oglesby of Stanford University. He is co-chairman of the joint committee on construction education of the American Society for Engineering Education and the Associated General Contractors of America. At Stanford he directs an outstanding program in the field with curricula leading to both undergraduate and graduate degrees.

Q. Have colleges made much progress in teaching construction?

A. Actually, no. With few exceptions I sense that engineering educators generally have no more interest in construction education than they did ten years ago. To most of them design is the important thing; construction really isn't civil engineering. I look for a quick awakening on the part of college administrators if and when the construction industry makes its needs known. Increased activities of both AGC and ASCE are good signs but they are only a beginning toward what must be done if widespread attention to construction education is to develop.

Q. Just how good is industry support?

A. Insofar as Stanford is concerned it ranges from poor to excellent. Support of research is poor. Scholarship contributions are fairly good. And general advice and encouragement from industry are excellent. This pattern is undoubtedly similar at other schools.

Q. Is research important in this field?

A. Definitely so. Lack of industry support for research programs is perhaps the weakest point in all of civil engineering education compared with other engineering fields. In construction engineering much more can be done in operations research and other cost reduction techniques. At Stanford we are fortunate in having a Navy Bureau of Yards and Docks contract that is showing us the tremendous opportunity for applying such techniques to construction. But by and large college research in construction and in civil engineering is limited to programs sponsored by a few materials producers. More research dollars would improve educational qualities of construction management programs.

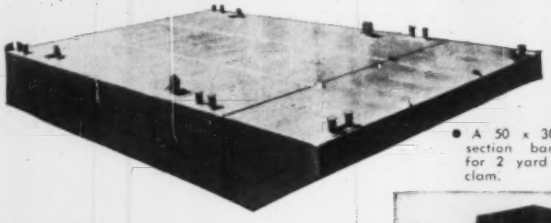
Q. What about scholarship money?

A. Of course, we can always use more. But this is one area where we think progress is good at Stanford. Half of our graduate students studying for a masters' degree in construction are getting some financial support. Most of this, in the form of scholarships, is coming from such firms as Utah Construction Co., Guy F. Atkinson Co., Chas. L. Harney, Inc., C. L. Peck Construction & Realty Co., and Ideal Cement Co. A portion of the contribution from some of these donors may also go for program strengthening. This money is used to buy periodicals, books and other teaching aids. As yet, this form of support is too small to help with salaries and overhead. In effect, Stanford is subsidizing construction education in a substantial way since tuition pays roughly half the cost of the program.

Q. What about other colleges?

A. I understand other contractors are making similar contributions at other colleges. Two factors in addition to the money itself are important: continuity and lead time. To be most effective both scholarship and research funds should be available for a period of years. And many months are needed to plan

MANITOWOC
SECTIONAL BARGES



● A 50 x 30 foot four-section barge suitable for 2 yard dragline or clam.

★Designed specifically for the contractor who has need for transporting his floating equipment in a short time with the least effort and expense. By quickly and easily bolting together any number of sections, the contractor has an extremely adaptable piece of equipment to provide an economical solution to any floating problem. Dragline, trench hoe or clamshell dredging, pile driving, crane lifting, pumping, pipe laying or floating equipment are some of the many uses of the versatile Manitowoc Sectional Barge.

Write for additional information and prices. Sold direct or through Manitowoc Engineering Corporation distributors.

● Easily transported by rail or highway.

● Assembled barge with crane and spuds.

MANITOWOC SHIPBUILDING, INC.
MANITOWOC, WISCONSIN

FOUNDATIONS
UNDERPINNING
PILING

Spencer White & Prentis INC.

SHORING
COFFERDAMS
"COLCRETE" PROCESS

CATALOGUE ON REQUEST

10 E. 40th ST., NEW YORK 16
DETROIT: 2033 PARK AVE.
CHICAGO: 221 NORTH LaSALLE ST.
WASHINGTON, D. C.: TOWER BLDG.
OF CANADA: 700 BAY ST., TORONTO
2032 ST. CATHERINE ST. WEST, MONTREAL

SHIELDS AND SAND HOG EQUIPMENT

Bulletin No. 23 shows installations of Mayo shields, cylindrical air locks, lock doors, medical locks and tunnel cars. Send for your free copy.

MAYO
TUNNEL AND MINE EQUIPMENT
Lancaster, Penna.

GUNITE
Since 1915
CONCRETE
SAND AND CEMENT
Placed by Air

GUNITE
BLO-CRETE WET-CRETE
LINING, ENCASING, FIREPROOFING, REPAIRING

Send for our new bulletin No. 20 of actual photographs, information and detailed specifications.

GUNITE CONCRETE & CONST. CO.
1301 WOODSWETHER RD. KANSAS CITY 5, MO
452 W. Chicago Ave., Chicago 10, Ill
1004 Market St., St. Louis 1, Mo
3206 Houston Ave., Houston 9, Texas
Los Angeles · Milwaukee · Twin Cities
Denver · New Orleans

. . . Teaching construction

best use of funds. For example, we are ready now to receive applications for scholarships for the 1959-60 school year.

Q. What form does industry encouragement take?

A. An example of this is in our graduate courses in construction. One evening a week we have a two-hour lecture by an industry leader—some 25 each year in all. This includes not only people from construction firms but also labor union representatives, construction bond underwriters and the like. AGC has also done a lot to encourage programs at Stanford and other schools.

Q. What about qualified full-time teaching staffs?

A. Other than financing, this is the biggest problem colleges have. To meet the requirements for appointment to a college faculty, a person should be a graduate engineer—preferably with advanced degrees. And he must have considerable stature in the industry. In reality, this means that he must take a 50% pay cut for the privilege of teaching—few want to do that.

Q. How well are your graduates received?

A. Many are doing quite well, rising to positions of genuine responsibility within a few years of completing the graduate program. And whether contractors know it or not, we do a good weeding out process. In only a term or so students find out whether or not they are cut out for the construction industry—a process that may take years working for a contractor.

Q. Do construction management programs attract students?

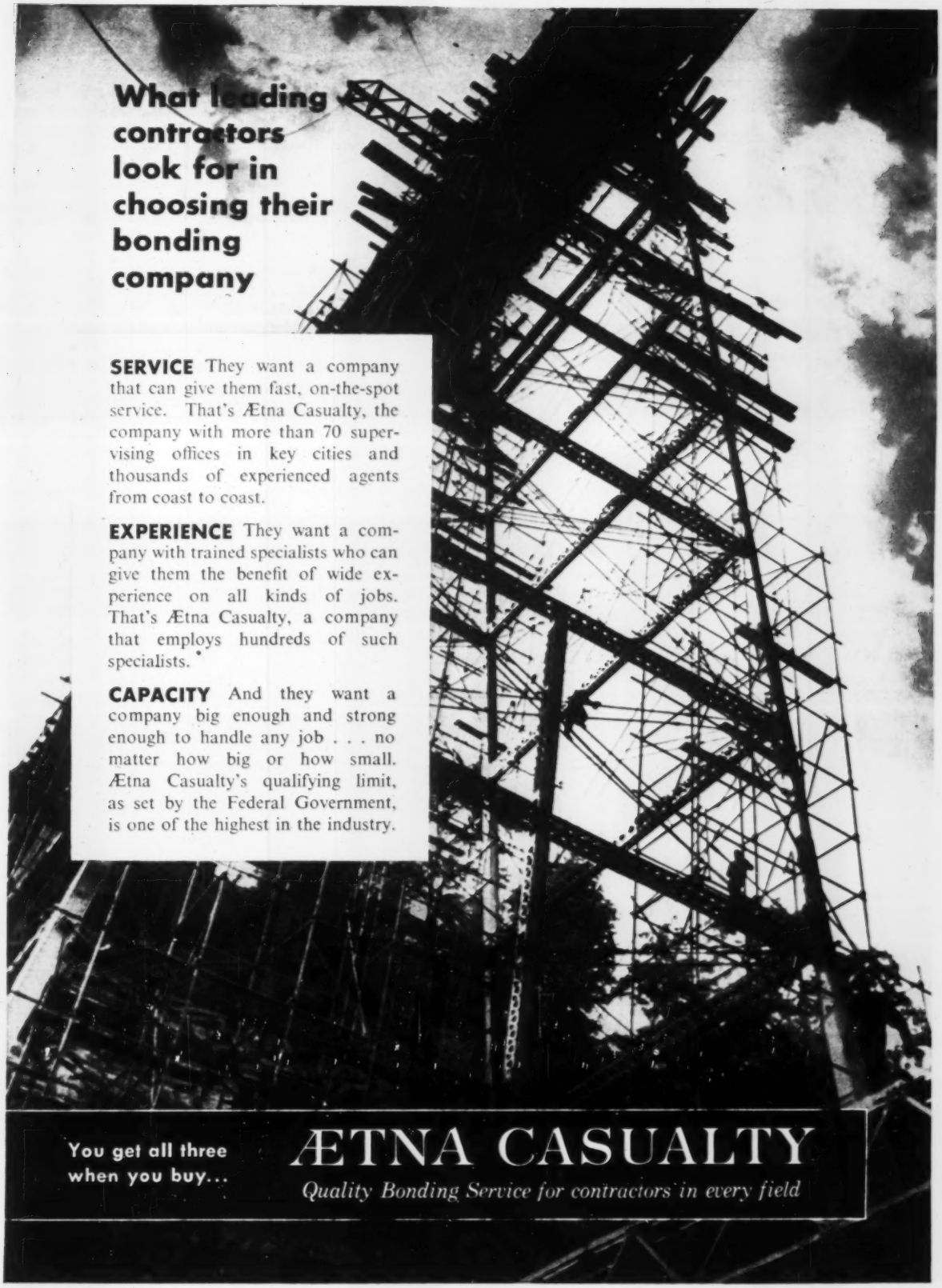
A. Yes, in our experience. This year, for example, we have students from New York, Alabama, Texas, South Dakota, Virginia, and New Mexico. And we have some from Canada, Australia, India and Israel.

Q. What does your graduate program involve?

A. It requires 45 or more quarter units. Required graduate courses include construction administration, advanced construction equipment and methods, concrete construction, advanced engineering economy, depreciation, advanced foundation design and harbor structures. And we require at least 14 quarter units of electives in business management. These courses include accounting, finance, business law, time and motion study, labor relations and the like.

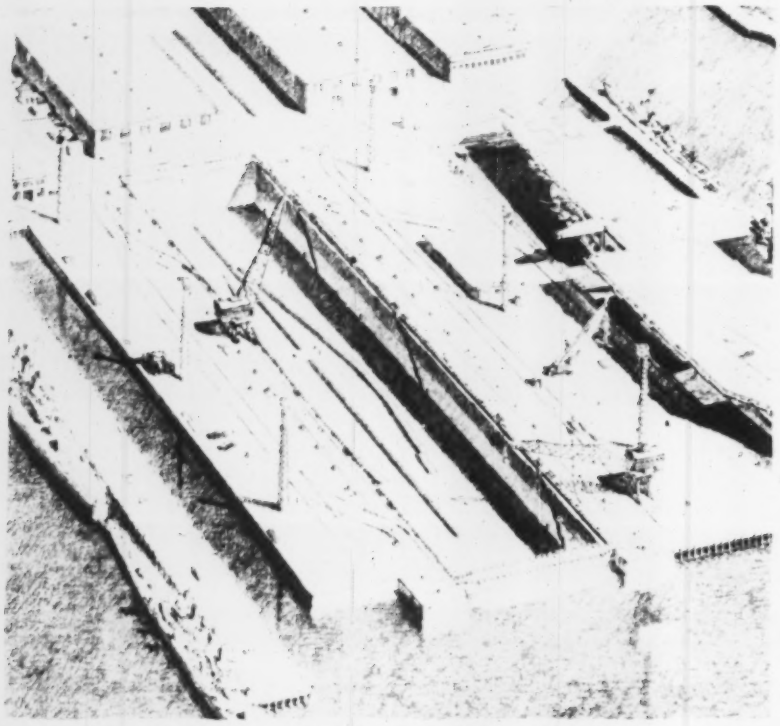
Q. How long does it take?

A. A graduate of an accredited course in civil engineering can easily finish in three quarters. Others may take longer.


What leading contractors look for in choosing their bonding company
SERVICE They want a company that can give them fast, on-the-spot service. That's Ætna Casualty, the company with more than 70 supervising offices in key cities and thousands of experienced agents from coast to coast.
EXPERIENCE They want a company with trained specialists who can give them the benefit of wide experience on all kinds of jobs. That's Ætna Casualty, a company that employs hundreds of such specialists.
CAPACITY And they want a company big enough and strong enough to handle any job . . . no matter how big or how small. Ætna Casualty's qualifying limit, as set by the Federal Government, is one of the highest in the industry.
You get all three when you buy...
ÆTNA CASUALTY
Quality Bonding Service for contractors in every field

Ætna Casualty and Surety Company • Affiliated with Ætna Life Insurance Company • Standard Fire Insurance Company • Hartford 15, Conn.

World's Biggest Drydock Will



Largest Naval vessels will fit in Puget Sound drydock.

The U. S. Navy is building the largest drydock in the world at Bremerton, Wash. At 1,150x188 ft and with its floor slab 61 ft below yard level, the drydock will accommodate the biggest Naval vessels in existence or proposed.

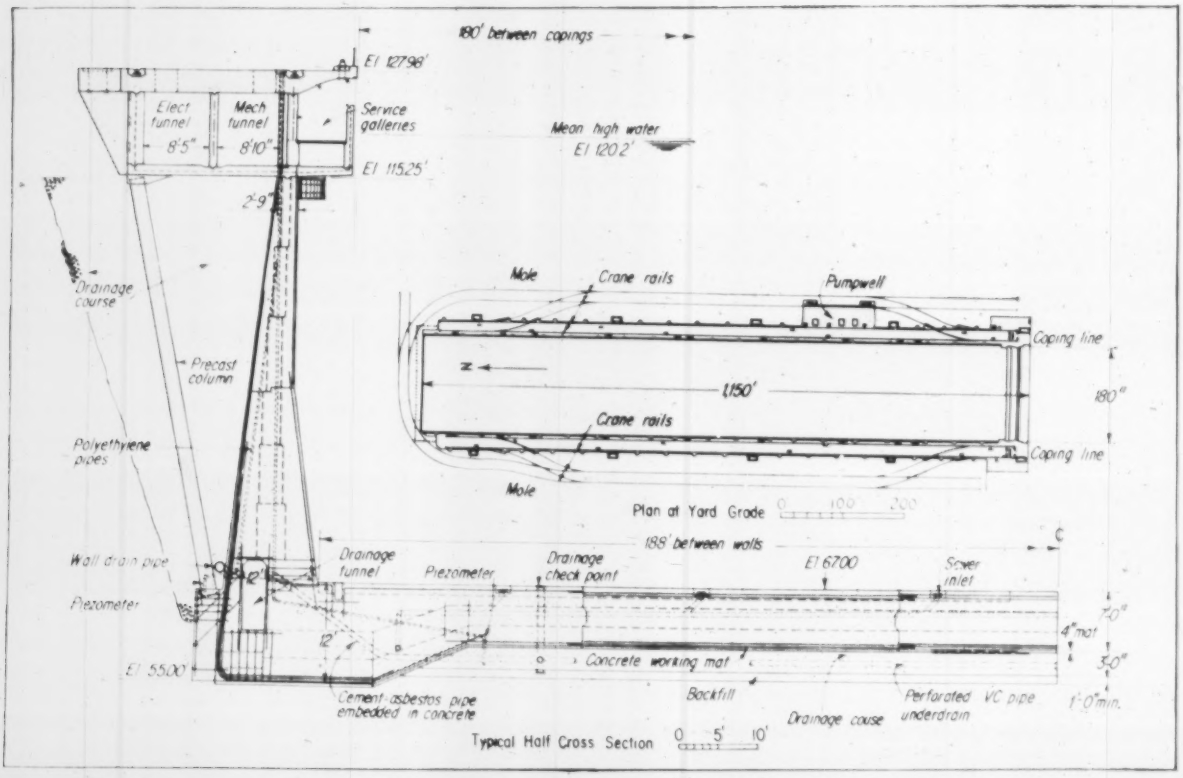
Contract for the drydock and flanking mole areas was awarded on Christmas Eve to a combine of firms low-bidding at $21.6 million. Other facilities, including a berthing pier, will be built as a second increment; estimated cost is about $5 million.

But size is only one noteworthy feature of the mammoth, reinforced concrete service structure. Design calls for an extremely thin floor slab—only 7 ft thick. Walls are to cantilevered up from the floor slab. They too will be thin, tapering from 12 ft to 3 ft.

Further, the construction area is to be enclosed with earth dams so the drydock can be built in the dry—an unusual procedure for such a large structure.

• **Relief is key**—The lightweight construction is possible because the drydock is to be a completely relieved structure.

A precision drainage system beneath the floor slab and along the walls will



THIN FLOOR SLAB, cantilevered walls and relief drainage system are featured in reinforced concrete drydock.

Be Lightweight Box

permit lowering groundwater level when the dock is dewatered—and thus control hydrostatic head on the outside of the dock. Without such control, pressure buildup against the thin walls and light slab could cause rupture or even bodily uplift of the watertight, concrete box.

A gravity dock with enough mass concrete to prevent rupture or uplift would have meant putting in a floor 43 ft thick—six times the chosen design. It would also have called for a deeper bite into the site bottom to take the slab. Such a dock would be more expensive and more difficult to build.

• **The site**—The drydock is going into a Puget Sound bottom that consists of firm material overlain with 0 to 40 ft of soft material.

The firm material consists of layers of fairly compact silty sand and gravel. Under this is a compact bed of sand and gravel with some silt (glacial till). These last layers are considered suitable for the heavy loadings of the drydock.

The soft material is mainly soft to medium clay, not good for permanent loadings. (Its variation in thickness ruled out piles for hold-down of a moderately thick floor for an unrelieved drydock—another system considered.) All this soft material is to be removed. And, to achieve grade for the floor slab, some otherwise suitable material at the shore end of the dock will also have to be removed.

In all, some 800,000 cu yd of material will be removed beneath the drydock, moles and future pier. Clamshells may be needed to supplement suction and dipper dredges for mucking out the deepest areas.

Granular material—plentiful in the Puget Sound area—will be brought in to replace the removed material. It will become the basic foundation for the drydock. It also will be laid up to yard level to form the moles. Fill and backfill for drydock and mole area are expected to total 1.1 million cu yd.

The granular fill material must support the weight of the drydock when flooded and the weight of more localized ship loadings when the drydock is dewatered and the ship blocked up.

• **Cofferdam**—The artificially placed moles will do double duty. A portion of the mole fills will be incorporated in cofferdams on the east and west, or sidewall, lengths of the drydock.

A line of steel sheetpiles through the dam and into the glacial till will act as a water cutoff. Earthwork and sheetpile will remain as part of the permanent structures.

The sea, or south, end of the drydock will be temporarily sealed off with interconnected sheetpile cells that tie in with the sheetpile lines.

• **The box**—Over 150,000 cu yd of concrete and 8,300 tons of reinforcing steel will go into the drydock.

The 7-ft-thick floor slab flares out to a thickness of 12 ft under the walls. The walls will be cantilevers up from the floor slab. Their thickest part, at the bottom, measures 12 ft. They rise almost 50 ft, tapering to less than 3 ft thick at top. Walls and floor slab will act monolithically.

A 30-ft-wide, 13-ft-high section will run along the top of the wall. It will house the electrical tunnels, mechanical tunnels and service galleries.

The service galleries hang in on the drydock, making clear distance between copings 180 ft. Distance between walls at floor slab level will be 188 ft.

The overhang to the outside of the dock will be braced with precast concrete columns set diagonally.

The sea end of the drydock will be fitted with a floating caisson gate to let ships in and out.

Four 8-ft-square sliding gates will open to fill the dock with about 88 million gallons of water in 90 minutes. A pumpwell, to go in the east wall, will dewater the dock. It features four main pumps that can each move 115,000 gpm.

• **Keeping the balance**—Because there is insufficient deadweight and strength in slab and walls for resistance of exterior hydrostatic pressures, the groundwater drainage system must operate perfectly and continuously for the life of the drydock.

When the drydock has been pumped out, outside groundwater level should be down to between elevations 67.5 and 68, just a bit above floor slab level. This is expected to provide a satisfactory factor of safety against uplift.

However, a more critical condition can occur while the dock is being pumped out. If the groundwater drawdown lags too much behind the lowering water level in the drydock, rupture or bodily uplift could take place.

Therefore the differential between inside and outside head is set conservatively at no more than 10 ft. Permanently placed piezometers will provide continuous readings.

The drainage system that will do the delicate groundwater regulation job starts with a drainage course under the slab and alongside the walls. These will consist of properly graded courses of granular material carefully placed. In all, 92,000 cu yd are to be placed.

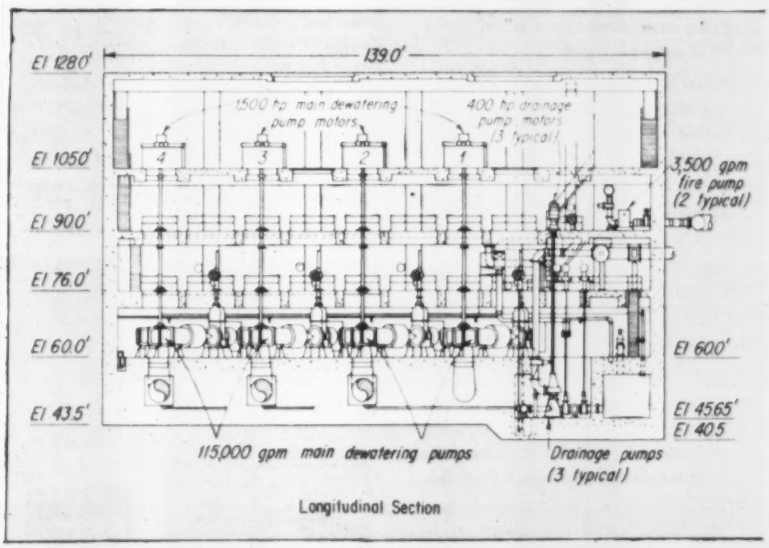
Under the slab, the course will be 3 ft thick. A horizontally laid network of perforated collector pipes will be embedded in this course.

A perforated collector pipe will run horizontally along the lower part of each wall, also embedded in a drainage course. This pipe will rest on a concrete shelf for maximum support.

Asbestos-cement pipes will lead water from the collector systems to drainage tunnels in the bottom of each wall.

As soon as possible, a 4-in.-thick, concrete sub-floor with waterproofing membrane is to be placed over the drainage course to keep out dirt and protect the collector pipes during construction of the main floor slab.

(*Turn the page*)



PUMPWELL, in east sidewall, will dewater drydock to leave ship high and dry.

Triple purpose Asplundh Fieldhouse of Academy of the New Church, Bryn Athyn, Pennsylvania, has central wing of 100' x 150', framed by glulam timber arches spaced at 18'. Arch height is 24' at the leg and 30' at center. Architects: Thalheimer and Weitz, Philadelphia. Engineers: Valley Forge Engineers Co., Inc., King of Prussia, Pa. Contractors: George Synnestvedt, Bryn Athyn.

MULTIPLE USE WITH MINIMUM BUDGET

The design problem for this handsome field house required space for gymnasium activities, for convention meetings of up to 2,600 people, and for evening recreation facilities for the community. Good appearance was essential, yet the budget was rigidly restricted.

As frequently happens, glued laminated timber structural framing provided a solution high in satisfaction and low in cost — only $13.30 a square foot!

Arches of 100 foot span support the roof while creating an interior handsome enough for any purpose. 30' x 150' wings on either side of the gymnasium are framed by glulam columns and curved roof beams. One wing contains kitchen, serving area and wrestling room which doubles as banquet room; the other wing contains coaches' offices, and dressing and toilet rooms.

If you have a problem in school design it can be solved with equal satisfaction by framing of beautiful, permanent, truly economical glued laminated timbers. For detailed information, see your nearest Timber Structures representative, or write us.

JOB DATA

Exterior walls: gray concrete block with glass end walls.

Interior walls: painted concrete block, ceramic tile in shower and toilet rooms.

Roof surface: S. I. S. roofing with white mineral surface.

Floor: maple, with treated surface enabling floor to be used for roller skating.

Heating and ventilating: two blower units serving 16 grills in gymnasium; radiators in side rooms. Heat supplied by existing boiler plant.

Lighting: incandescent down lights, indirect light coves, spotlights over stage area.

Ceiling: one inch wood fibre insulation on under side of structural roofing.

Area: 24,026 sq. ft., including mezzanine floor.

Volume: 552,000 cubic feet.

Cost per square foot: $13.30.

TIMBER STRUCTURES, INC.

P. O. BOX 3782-C, PORTLAND 8, OREGON

Offices in Ramsey, N. J., New York City, Boston, Philadelphia, West Hartford, Cleveland, Charlotte, Chicago, Centerline, Mich., Kansas City, St. Louis, Minneapolis, Des Moines, Wichita, Memphis, Dallas, Houston, Birmingham, Los Angeles, Seattle, Spokane, Denver.

Local Representatives throughout the United States

TIMBER STRUCTURES, INC. OF CALIFORNIA

Richmond • Sacramento

CHARTER MEMBER

MEMBER

See our catalog in Sweet's or write for copy

. Combine gets drydock

Structural design of the Bremerton drydock (labeled No. 6) is by Moran, Proctor, Mueser & Rutledge of New City. Carey & Kramer, of Seattle, did the electrical and mechanical work design.

Capt. S. P. Zoln, CEC USN, district public works officer for the 13th Naval District, Seattle, is officer in charge of construction for the Navy Bureau of Yards and Docks. Capt. Perry Boothe, CEC USN, is the resident officer in charge at Bremerton.

Construction contract is held by a combine consisting of Manson Construction & Engineering Co., Seattle; J. A. Jones Construction Co., Charlotte, N. C.; Perini Corp., Framingham, Mass.; and Osberg Construction Co., Seattle.

Completion time is 1,065 days.

Engineers Fill In As Part-Time Teachers

A Dallas firm's engineers are doubling as science and math teachers in hard-pressed local high schools.

The "Share the Talent Program" began when officials of Temco Aircraft Co. discovered that four small, independent Dallas school districts couldn't afford qualified science teachers. The company asked for volunteers.

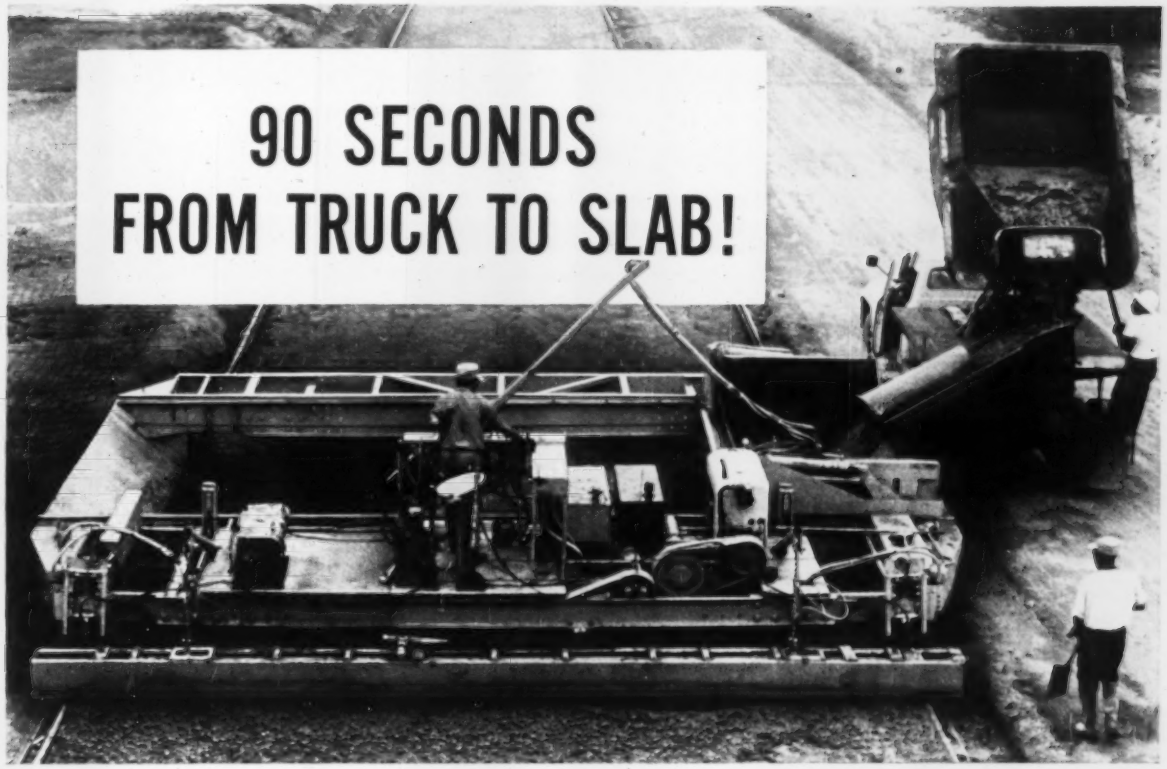
Four engineers were chosen from among the 60 who stepped forward. Each of them had previous teaching experience and degrees in either math, physics or engineering.

The part-time teachers now spend 2½ hours daily in the classroom while holding down their jobs at Temco. Temco officials say the volunteers return to their jobs fresher and more productive because of the experience.

And the students? Enrollment during the first term after the program started was three times what had been expected. Of eleven seniors, only two had plans for college at the start of the term. Within weeks all 11 were headed toward higher education.

Texas Board of Education officials say the engineer-teachers breathe life into their subjects, by tying them to today's headlines; one of the men was a designer on the Nautilus project, another is a rocket propulsion expert.

• **Drexel seniors pinch hit**—Pinch hitters also are being used in Philadelphia's understaffed high school math and science departments. Twenty Drexel Institute of Technology seniors are serving as full-time substitute teachers. In this program, worked out by Drexel and the Philadelphia Board of Education, the seniors teach during the working periods of their cooperative curriculum.



90 SECONDS FROM TRUCK TO SLAB!

That's how fast you place 4½ cu. yds. of concrete with the

MAXON DUMPCRETE SPREADER

60 seconds to chute-load the spreader bucket with the fast, flexible Dumpcrete hauling body—15 seconds to spread—15 seconds to move and strike off. Only 90 seconds completes the cycle. Placing rate ranges from 180 to 260 cu. yds. per hour, depending on plant capacity.

Dumpcrete Spreaders place to desired depth; base course, top course or full depth. Widths are adjustable from 20 to 26 feet. Controls are *hydraulic*. Design is simple and trouble-free. Construction is rugged. Applications include highways, airport runways, streets. And Dumpcrete Spreaders handle concrete of the lowest workable slumps.

Maxon developed this new spreader so that contractors could take full advantage of the time and labor-saving benefits of the "central mixing—non-agitated hauling" method. The Dumpcrete Spreader with Dumpcrete Trucks make a high-production team that's been job-proved by some of the nation's top contractors during the past season.

Get full details now. Find out how the complete Dumpcrete method can help you speed work, cut costs and maintain quality on your next paving job. Send the coupon today for new catalogs—or call your Dumpcrete distributor.

Send for this new ***Dumpcrete Literature***

MAXON
MANUFACTURING DIVISION

MAXON CONSTRUCTION COMPANY, Inc.
Manufacturing Division #47 • 2600 Far Hills, Dayton 19, Ohio

Please send me the new Dumpcrete Spreader catalog with specifications

NAME _____
TITLE _____
FIRM _____
ADDRESS _____
CITY _____ ZONE _____ STATE _____

Iraq Squeezes Western Builders

- **Relations between the new Development Board and Western contractors are worsening.**
- **Tighter financing, higher labor costs, less flexible contract terms harass construction work.**

The position of Western contractors in Iraq is becoming more precarious every day.

A growing suspicion and lack of confidence between the contractors and the Iraq Development Board is frustrating some of the firms now active in Iraq, tied to this is the country's uncertain political future.

Contractors particularly note an increasing impatience and inflexibility on the part of board officials.

Of equal concern is this open threat: If Western firms fail to stick to the letter of their contracts, there are many Soviet bloc concerns eager to take over. The board's attitude seems to be that if the Soviet concerns are prepared to lose money, that's their business, not the board's.

The difficulties contractors are meeting in Iraq are related to finances, manpower and contract requirements.

• **Financial**—Beginning with the new year, all Iraqi banks will stop their former practice of advancing loans to foreign contractors who have a job in progress or are about to start one. Moreover, the Development Board has for some time held up or restricted advance payments to contractors from its own reserves.

Although contracts signed in the past contained no provision for interim financing by the board, it had become established practice for the board to advance working capital out of its reserves.

Some contractors are now being forced to return, within three months, the plant advances made to them previously, and to bring in their own capital for completion of the contract.

• **Manpower**—New labor laws have also increased the labor costs of the contractors. For example, there has been a reduction of the working day from a minimum nine hours to eight hours. But there has been no corresponding reduction in wages.

There are new social security charges, a 25% increase in overtime payments and an increasing difficulty in dismissing workers.

• **Contract muddle**—In addition to financial and labor difficulties, some contractors are having problems on contract terms. Most of these are in the roadbuilding program, whose failure has plagued the Iraq Development Board for years.

Faulty specifications, very low bids and inadequate and inexperienced tendering has resulted in many delays, breakups and abandoned contracts.

One road contractor, whose case is now before arbitration, blamed the road section of the Development Board in the old regime for the contractors' troubles today.

He says the section was inadequately staffed, badly organized and "thought it was being smart by having its own staff take the role of consultants."

Consulting engineers, he says, would have prevented job-underrating, faulty and inadequate specifications and hastily drawn up tenders. And they would have leveled off other unforeseen difficulties in the execution of the contract by acting as judge and arbiter between the board and the contractors, he adds.

Although these difficulties originated during the old regime, they have been aggravated by the rigidity of the officials in the new regime, the contractor says.

In the old regime, the board showed some flexibility in not demanding too strict an application of contract terms.

The new regime, which has inherited the mistakes of the past, insists on sticking to the letter of the original contracts.

Result: At least four companies working in Iraq have been forced to abandon their contracts, which were then cancelled by the board. All four companies have asked for compensation and for arbitration against application of penalty clauses.

The four companies are:

• D. C. William Press Ltd. (British), which had a $15-million contract for a 75-mile highway from Jalawla to the

. . . Behind the Squeeze: Mid-East Politics

Communist expansion, Middle East rivalries and social unheaval are all playing a role in crumbling the position of Western contractors in Iraq.

The revolution that overthrew King Faisal's pro-Western monarchy six months ago seemed then a further manifestation of Nasser-led Middle East nationalism. Brigadier Abdel Karim el Kassem concluded a mutual defense pact with Nasser's United Arab Republic, even closer ties appeared imminent.

But the Iraq revolutionists apparently had second thoughts. Although Iraq's people are sand-poor, her soil is oil-rich. Iraq would have little to gain in union with UAR.

Under the pretext of destroying "counter-revolutionary plots," Kassem has weeded out the pro-Nasser elements in the Iraqi government. But to find a new base of political support, he had but one place to turn: That's to the Communists, the only other group with a wide following.

He has accepted arms from Communist-bloc countries, harbored Red refugees and given domestic Communists a nearly free reign.

The result of this shift in the political wind became apparent a month ago when U. S. Asst. Sec. of State William M. Rountree was greeted in Baghdad by rock-throwing, slogan-chanting mobs, apparently Communist inspired.

This climate may improve slightly. Western diplomats were cheered this month by the news that Iraq had limited the activity of the People's Militia and Iraqi Students Union, both Communist dominated groups.

There is another side to the Middle East coin.

Nasser, although willing to deal with the Communist bloc, has always been wary of home-grown Reds.

Worried about developments in Iraq, Nasser has recently been bidding for better relations with the West.

One immediate outcome: The leasing to Nasser of the U. S. Corps of Engineers' dredge "Essayons" for work on the Suez Canal (ENR Jan. 15, p. 25).

Derbendi Khan damsite, including bridges and tunnels;

Viamni (Italian), which had the contract for the 100-mile highway from Baghdad to Kut in south-central Iraq;

The Contracting & Trading Company (Lebanese), which had the contract for the Kirkuk-Sulemania highway in the northeast;

Beton und-Monierbau AG (West German).

The Development Board says it "has stuck to the terms of contracts and has merely cancelled the extra privileges the former Development Board used to pour into the companies' laps, such as getting Iraqi banks to finance their contracts. It is a matter of course that companies, which are awarded a contract in Iraq, must bring into the country the capital required. The Development Board asked the complaining companies to finance their own projects, and to complete them within the prescribed period, or face the consequences."

Mohammed Hadid, Minister of Finance and acting Minister of Development, says he does not think the new restrictions would "seriously inconvenience foreign contractors of good standing, nor discourage them from bidding for new board contracts."

The minister warns, however, that Western consultants and contractors should be prepared to compete with state concerns from the Soviet bloc in the future.

"The list of countries consulting on and contracting for future projects will be much wider than before, giving us the full advantages of the latest technical developments and of truly competitive bidding," he says.

Despite the frustrations, most major firms with contracts in Iraq are continuing their work.

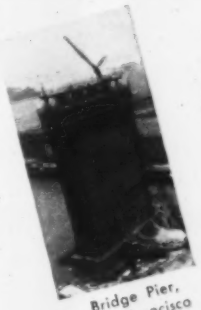
Nevertheless, restrictions on local financing may change the entire picture. Under present political circumstances, few firms will risk sending any money to Iraq for jobs already in progress; even fewer will risk taking on new contracts—at least in the immediate future.

The country is not yet stable and there may still be changes in the Development Board.

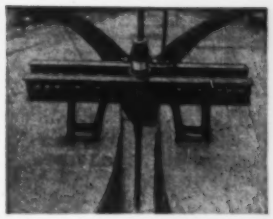
The changes will not be in favor of Western firms if present Communist attempts to infiltrate government departments are successful.

For one engineer's personal views on the construction man's lot in Iraq, please turn the page.

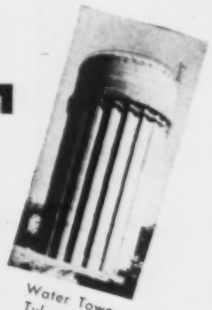
HYDRAULIC SLIPFORM SERVICE



Bridge Pier, San Francisco

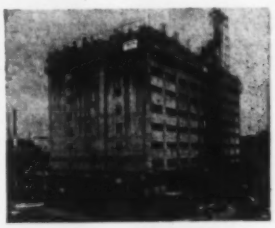


All-inclusive compact jacking unit



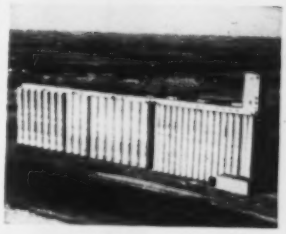
Water Tower, Tyler, Texas

Apt. House, Memphis, Tenn.



You build the form, "Concretor" equipment raises it automatically. Adaptable to all types of vertical construction. On-the-job engineers available. Send for job studies.

Elevator, Fremont, Neb.

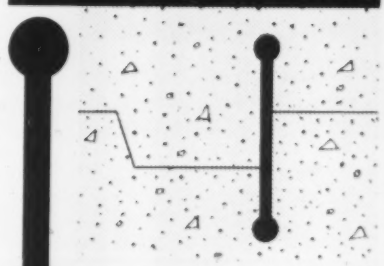


B. M. HEEDE, INC., 30-01 37th Ave., Long Island City 1, N. Y.

In San Francisco: 630 Sixth St. In Montreal, Can.: 625 Faillon St.

WATERSTOPS

FOR MASONRY CONSTRUCTION JOINTS



RUBBER or VINYL

Williams Efficiency Waterstops are made from Natural Rubber Stock, and designed for maximum effectiveness in any type of cast-in-place construction joint. They will bend around corners—will not crack or tear from shear action. Tensile Test: 3990 lbs.; Elongation Test: 650%. Available in rolls up to 80 feet in length. Field splicing is simple. Williams Waterstops can also be furnished in Vinyl or Neoprene for industrial uses where resistance to oil and other injurious wastes is desirable. These highly effective Waterstops are now in use in hundreds of industrial plants, commercial and public buildings throughout the country.

See Sweet's, or Write for Information.

WILLIAMS EQUIPMENT and SUPPLY CO.

456 W. Eight Mile Rd., Hazel Park, Mich.

GOT THIS?

(Predraining Problem)

GET THIS!

(Skilled Wellpoint Engineering)

From

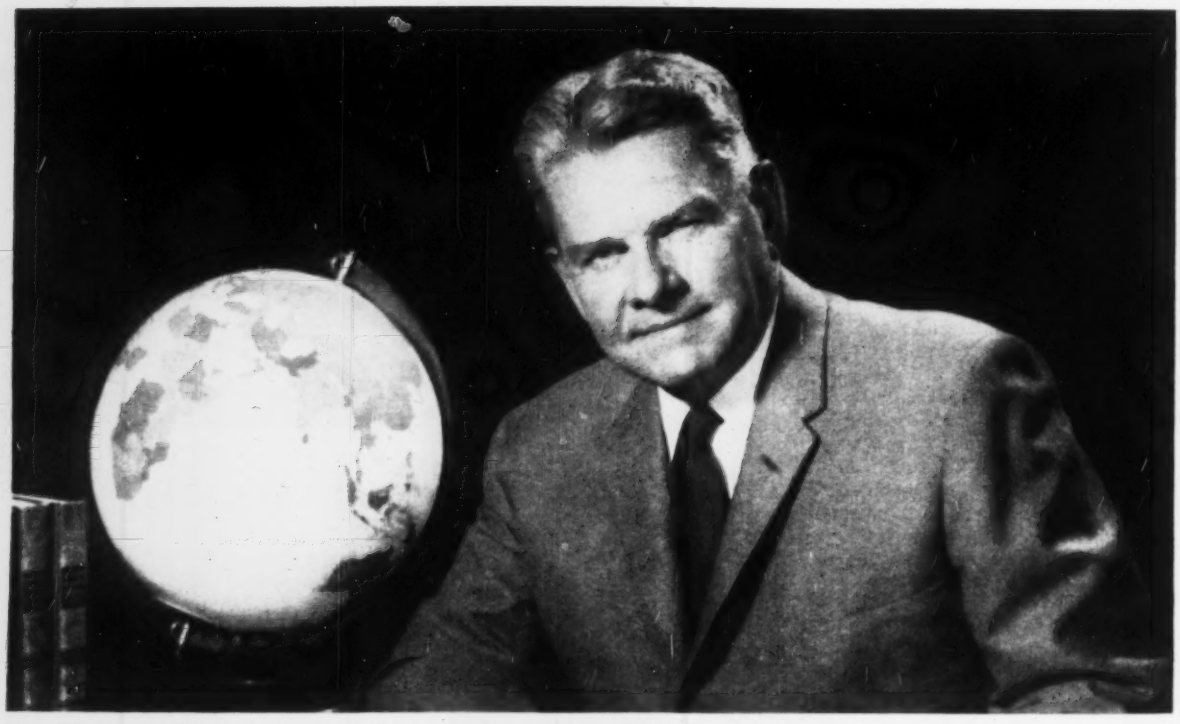
GRIFFIN

WELLPOINT CORP.

881 East 141st Street, New York 54, N. Y.

Hammond, Ind. Houston, Tex. Jacksonville, Fla.

West Palm Beach, Fla



Harold T. Smith, American engineer in Iraq, gives ENR his opinion on . . .

How U.S. Firms Will Make Out in Iraq

Most American companies involved in construction in Iraq won't fare as badly under the new regime as recent developments lead some of them to fear. But to operate in the area, Americans—business and government alike—have got to accept certain political realities.

So says Harold T. Smith, American engineer who heads a well-drilling firm that has sunk about a quarter-million feet of wells in Iraq under both the old and new governments.

Contracts with a few European companies have been canceled, and payments to some American companies are in arrears. This has caused some fear that General Kassem's government, which came to power following the bloody overthrow of the old Hashemite monarchy last July, might renege on all contracts made by the deposed government.

Mr. Smith is more optimistic. He believes the revolutionary government will abide by its declared intent to honor contracts entered into legally with the old regime. But he feels that if there is any suspicion that a contract was obtained through improper influence, the company involved can expect trouble, including probable cancellation.

• **Why the delay?**—One interpretation of the delay in payments is that the government wants to get the companies into disadvantageous positions for possible contract renegotiations. Mr. Smith is more inclined to attribute delays to the almost complete turnover of government personnel. Before making decisions, the new, inexperienced officials must make sure they are not approving something they criticized the previous government for.

Mr. Smith's own work is proceeding about as it did under the old government, he says. There was some delay of payments immediately following the revolution, but now both local-currency and dollar payments are coming in what he considers a normal period.

• **The big "if"**—Mr. Smith's cautious optimism is tempered by one big "if": communism. Reds are exerting strong pressure on the Kassem government, and some key spots are being filled by known Communists.

Should the Communists gain control, government policy would become antagonistic to everything American. Then the present fears of U. S. firms in Iraq would undoubtedly materialize.

• **Short-term projects favored**—Mr. Smith thinks the new government intends to concentrate on projects whose benefits will reach large numbers of people quickly. There is no evidence, he says, that Iraq intends to drop jobs aimed at providing domestic water supply, irrigation, flood control, low-cost housing, sanitation, local industries, rural electrification and education.

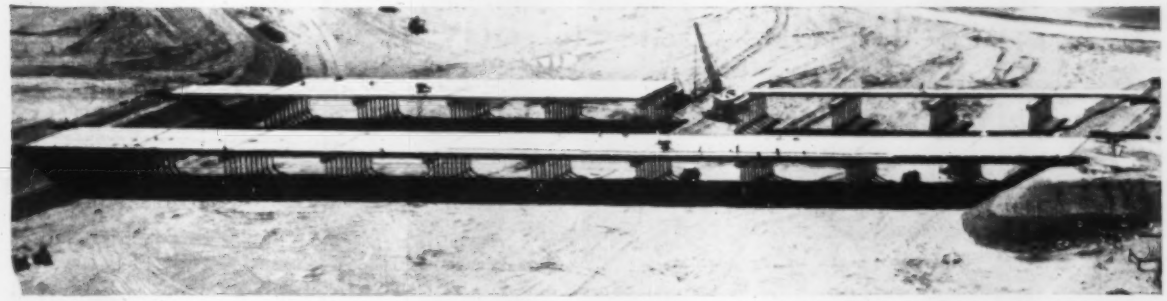
However, there are indications, he says, that glamor or luxury projects, such as the Baghdad Opera House, will be abandoned. One of the major charges the present government made against its predecessor, says Smith, was that improvements were not undertaken to help the masses but to benefit a favored few.

The opera house, designed by Frank Lloyd Wright on commission from ex-King Feisal, has been called an expenditure of millions to satisfy the vanity of a few people who probably had attended the opera in Europe once in their lives. It was also criticized as an unwarranted emulation of cultural activities of European capitals.

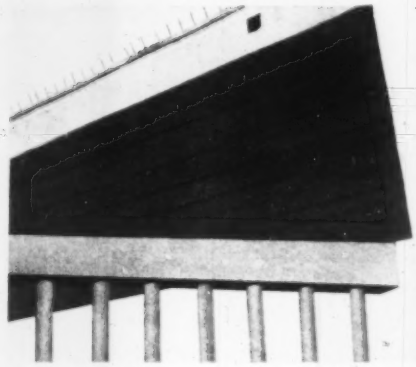
Other projects likely to be abandoned as frivolous include a proposed civic center in Baghdad and additions to the former royal palace.

• **Political facts of life**—If Americans are to participate in future development

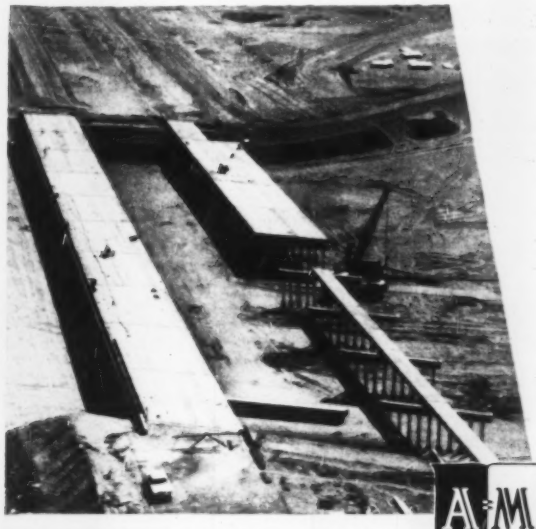
AMDEK Bridge Beams
speed superhighway construction



Dual lane highway bridges, constructed with prestressed pretensioned Amdek Beams, near completion in Socorro County, New Mexico. Erected for the New Mexico State Highway Department as part of the Federal Interstate Program.



Low depth-to-span ratio means less weight, greater clearance and reduced fill. Smooth underdeck offers minimum resistance to flood debris.



200 Amdek Box Girders used to build 506 foot bridges on 30° skew. Independent dynamic and static load tests prove superior strength of Amdek Skew Beams.

Another example of

Progress in Concrete

Amdek Superstructures—available in lengths up to 100 feet or even more—can cut bridge building time from weeks to days or days to hours! Prestressed, pretensioned, and with specially designed voids, Amdek Sections are lighter and more rigid for better, easier handling . . . provide a stronger combination deck and loading member.

Precast Amdek is rapidly placed in any weather and assures a bridge of beauty for years without painting or other maintenance. Materials are readily available . . . plants are strategically located for fast delivery anywhere—to bring you "Tomorrow's Bridge" today.

American-Marietta's experts in the design and manufacture of prestressed and precast concrete bridge members—including Amdek, I-Beams and Channel Slabs—can help *you* save considerable time and money.

Write today for illustrated literature.

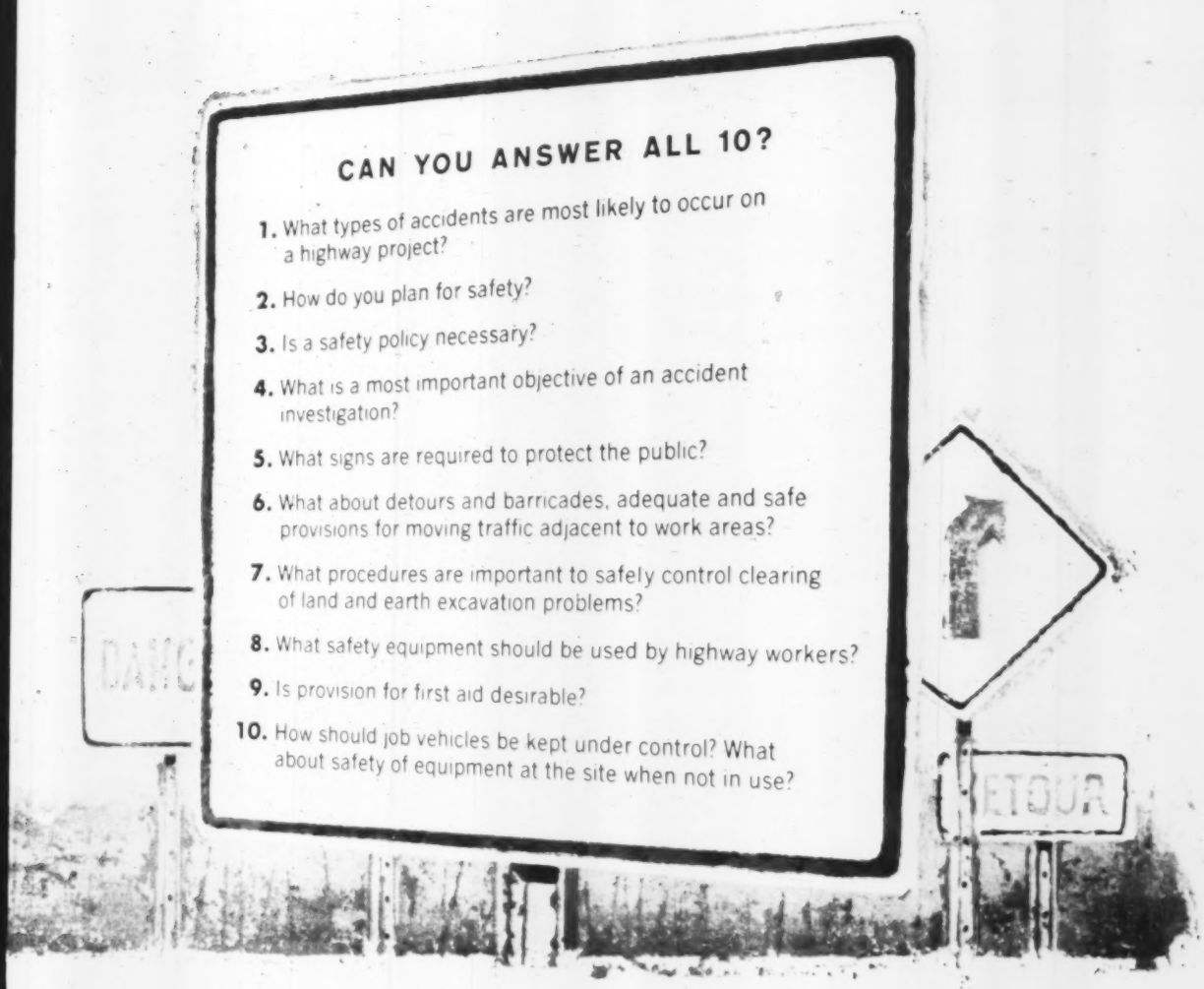
AMERICAN-MARIETTA COMPANY
CONCRETE PRODUCTS DIVISION
GENERAL OFFICES:
AMERICAN-MARIETTA BUILDING
101 EAST ONTARIO STREET, CHICAGO 11, ILLINOIS, PHONE: WHITEHALL 4-5600

10 QUESTIONS

every highway contractor should answer

before starting any job!

American


CAN YOU ANSWER ALL 10?
1. What types of accidents are most likely to occur on a highway project?
2. How do you plan for safety?
3. Is a safety policy necessary?
4. What is a most important objective of an accident investigation?
5. What signs are required to protect the public?
6. What about detours and barricades, adequate and safe provisions for moving traffic adjacent to work areas?
7. What procedures are important to safely control clearing of land and earth excavation problems?
8. What safety equipment should be used by highway workers?
9. Is provision for first aid desirable?
10. How should job vehicles be kept under control? What about safety of equipment at the site when not in use?
DANG
ETOUR

Successful contractors know that on any contract keeping costs within the original estimate is a key factor in completing the job satisfactorily.

Eliminating accidents is not only one of the surest ways to keep costs in line, but also helps to keep bids low and assures completion of contracts on time to help maintain a firm's reputation for reliability.

Knowing the answers to the 10 questions listed here and putting them into practice can assure any contractor of the benefits to be derived from an adequate safety program.

Your *friendly* AM *man* can give you the answers — and working with AM safety engineers he can help you set up such a program for more profits on any project . . . more successful bids too. At the same time, you'll save lives and limbs . . . earn sizable savings through lowered insurance costs plus dividends.

Many answers to construction safety problems are found in our book, "Surface Construction Without Accidents." For a free copy, write on your company letterhead to: American Mutual, Department EN-1, Wakefield, Massachusetts.

Leading writers of Workmen's Compensation, all forms of Liability, Crime and Accident and Health Insurance

Your friendly AM man can advise you on all your liability insurance needs

Mutual LIABILITY INSURANCE COMPANY

WATER SUPPLY is one type of work that won't be dropped, Mr. Smith says.

(Story starts on page 44)

programs in Iraq, they must recognize and accept the realities in present-day Iraq and shape their policies accordingly, Mr. Smith declares.

Whether it is technical services, construction know-how or statesmanship, Americans must offer a product of superior quality and must send their ablest salesmen—whether engineers or diplomats—to sell the product, he says.

Russians sent to the area definitely are not second rate, he says. Their product appeals to the people and by clever persuasion it is made to look good to the leaders.

Politicians the world over want to be aligned with a winner, and in Iraq, as elsewhere in the Middle East, Mr. Smith believes, there is a growing feeling that Russia is winning.

Two things Americans must live with in Iraq if they are to continue business in the country, says Mr. Smith are:

- A domestic policy of extreme nationalism.
- A foreign policy of neutrality.

He considers nationalism inevitable. But Iraq's neutrality between East and West could be modified by the sagacity of American policy and of American statesmen selling the policy.

A point in favor of the West: As long as the Western world is the real market for Iraq oil, economic policy will be slanted toward the West.

Dirt Houses Come Dirt Cheap

Low cost soil-cement houses are under construction in Wellington, New Zealand. Their 8-in.-thick walls are made of "terracrete"—a mixture of 12 parts dry sandy soil to one part portland cement.

Reinforced concrete columns are first placed at every change in wall direction and at a maximum spacing of 23 ft. Then the terracrete walls are built and capped with a continuous band of reinforced concrete, 8 in. thick and 8 in. high.

The builders designed the equipment for placing and compacting the earth. A drum mixer is [illegible] hoppers, pa[illegible]ntinuous supply of terracrete. The relatively dry mix is placed in movable steel forms, 8 ft long and 2 ft high.

Lath is nailed directly to the inside of the terracrete wall. Exteriors are finished with a half-in. stucco coat. Later they are threaded with a waterproof cement paint.

Floors are concrete slabs on grade. Roofing may be tile, corrugated asbestos, cement, aluminum or any other conventional type.

Six soil-cement houses are being built, for the Ministry of Works; a number of private homes have already been put up. John, Chris and Peter Anker are the builders.

Merge Water Companies to Serve All of Oahu Island

The two water supply systems on the Hawaiian Island of Oahu are planning a merger to gain financial strength.

The Honolulu Board of Water Supply and the Suburban Water System will combine to bring all water service on the island under one management.

The City of Honolulu has been the prime mover in the proposed union. City officials expect the stronger credit and financial resources of one big system will make improvements and expansions possible that the individual systems, especially the cash-strapped suburban system, can not handle.

Officers of the Honolulu system will control the merged managements. Still undecided is whether the Board of Water Supply will retain its semi-autonomous political status.

Geothermal Power Plant Is New Zealand's First

New Zealand's first geothermal steam power plant has been put into operation at Wairaker, North Island, according to United Nations Educational, Scientific and Cultural Organization headquarters in Paris. The plant produces 250,000 kw from natural steam.

It was indicated that additional plants are in the works. For one of them, at Waiotapu, a 2,000 ft bore will be opened soon to tap steam sources below layers of volcanic rock. Scientists working on the project say that the Waiotapu steam will be drier than the Wairaker steam and better suited for power production.

New Sea-Water Distillery Also Generates Power

A water-distilling plant has been completed at Aruba, Netherlands Antilles.

Probably the largest in the world, the plant will produce 2.39 million gallons a day. At the same time it will generate 15,000 kw of electrical and steam energy.

Rain is extremely scarce and no natural fresh water exists on this island of 54,000 population. Therefore all water for both consumption and irrigation has to be imported or distilled from sea water.

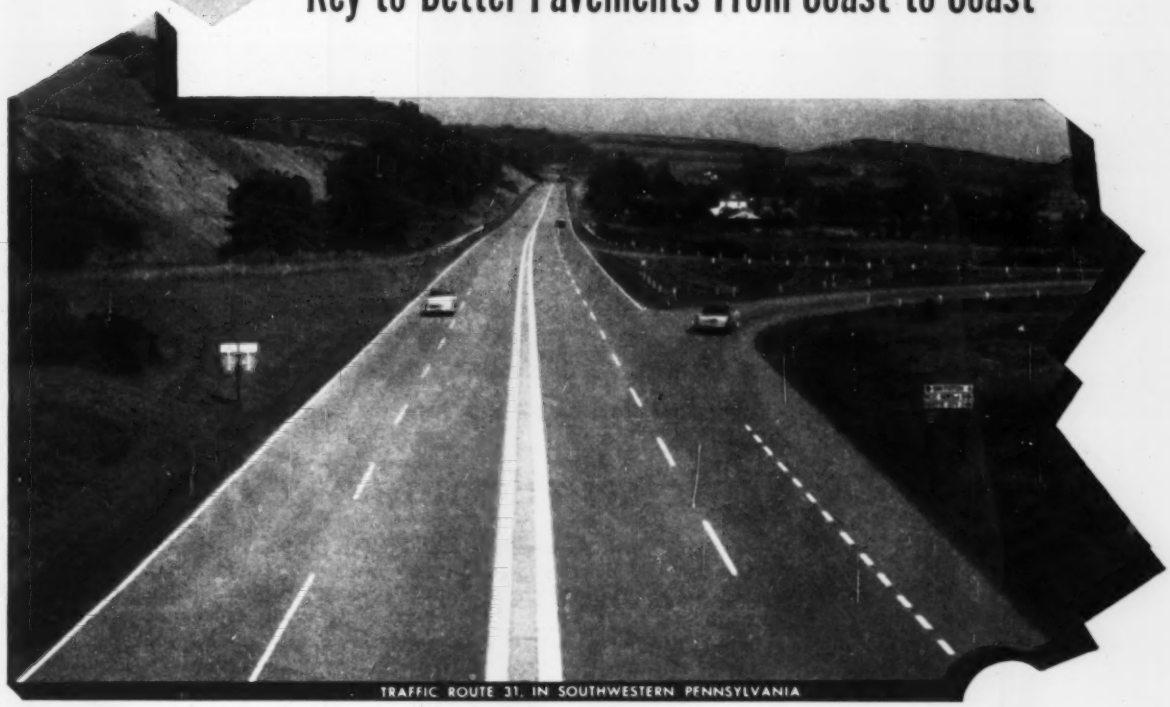
It is is expected that with the new plant the price of water can be cut in half.

The previous plant required $250,000 in subsidies and water sold at 50 cents per ton.

Singer and Brever, New York City, are the contractors.

CHEVRON ASPHALTS

Key to Better Pavements From Coast to Coast



TRAFFIC ROUTE 31, IN SOUTHWESTERN PENNSYLVANIA

Across the nation, Chevron Asphalts and Bitumuls Emulsified Asphalts are being used extensively by roadbuilders to provide more and better roads for every dollar spent.

KEYSTONE STATE HIGHWAY CONTRACTOR BIDS PROVE ASPHALT DOLLARS GO FARTHER

The Federal Government's 90% payment of Interstate Highway costs has not reduced the need for economy nor the importance of getting more miles of durable pavements for our highway dollars.

Contractor bids and the awarded contractor prices for Interstate Traffic Route 31 of the Pennsylvania State Highway System prove that asphalt paving dollars go farther. TR 31, an important 43.17 mile main Interstate Highway which connects the Pennsylvania Turnpike and Interstate Route 40 was constructed of 21.74 miles of concrete and 21.43 miles of asphalt. Both types of pavement are on the same route and carry the same traffic. They were specifically designed for comparable service.

The total accepted bid price for the 21.43 miles of asphalt:

$2,300,450.08. The total accepted bid price for the 21.74 miles of concrete: $3,273,056.51.

Average cost per mile for *concrete* pavement $150,554.57

Average cost per mile for *asphalt* pavement $107,347.18

AVERAGE PER MILE SAVING WITH *ASPHALT PAVEMENT* . . $ 43,207.39

Congress, State Legislatures, and Highway Engineers are now concerned about funds to continue the construction of our important and badly needed Interstate System. The savings resulting from adequately designed, long-life, economical asphalt pavements for the Interstate System will not only allow more rapid completion of the System, but in addition will benefit all of us by providing needed dollars for the constructing, widening, and resurfacing of important primary, urban, and farm-to-market roads.

Chevron Asphalt and Bitumuls products are available – coast to coast – for use by roadbuilders everywhere. They are backed by service facilities unmatched in the paving industry. A phone call to one of our more than fifty plants, refineries, terminals or offices will bring the information you need on any product or pavement design problem.

American Bitumuls & Asphalt Company

320 MARKET, SAN FRANCISCO 20, CALIF.
Perth Amboy, N. J.
Baltimore 2, Md.
Cincinnati 38, Ohio
Atlanta 8, Ga.
Mobile, Ala.
St. Louis 17, Mo.
Tucson, Ariz.
Portland 8, Ore.
Oakland 1, Calif.
Inglewood, Calif.
San Juan 23, P. R.

BITUMULS® Emulsified Asphalts • CHEVRON® Paving Asphalts • LAYKOLD® Asphalt Specialties

4-D

WROUGHT IRON IN WATER AND SEWAGE PLANTS stymies corrosion

WHERE TO USE IT:

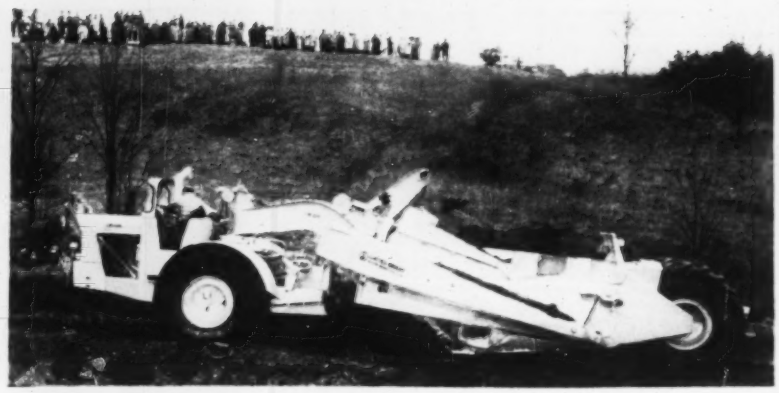
- gas lines
- heat exchanger tubes
- digestor heating coils
- raw sewage lines
- sludge lines
- compressed air lines
- guard railings
- electrical conduit
- chlorine lines
- ammonia lines
- outfall lines
- boiler piping
- weir plates and baffle plates
- smokestacks
- sludge tanks
- manhole ladder steps
- storm sewer buckets
- soil, waste, vent and downspout lines
- hot and cold water piping

Write for technical data on specific applications

BYERS 4-D WROUGHT IRON

Tubular and Flat Rolled Products

A. M. Byers Co., Pittsburgh 22, Pa.



Self-propelled scraper is one of Curtiss-Wright's . . .

Two New Earthmover Entrys

Two new earthmovers—both in the large scraper category—have been introduced by Curtiss-Wright Corp.—newcomer to the heavy construction equipment manufacturing industry.

Both models are two-axle scrapers. One unit, Model CW-226, has a struck capacity of 26 cu yd, a heaped capacity of 36 cu yd, and a payload capacity of 39 tons. It is the second largest of 14 models of earth moving equipment now being manufactured by the South Bend Division of Curtiss-Wright Corp., at its South Bend, Ind., plant.

The other new unit, Model CW-220, has a capacity of 20 cu yd (struck) and 27 cu yd (heaped). Several of the other 12 models are improved versions of the old Wooldridge line of scrapers formerly made in California.

The complete, 14-model line includes both self-propelled and tractor-drawn scrapers. They range in size from 7 cu yd to 30 cu yd, struck capacity; also rear dump models up to 35-ton capacity.

The company is building these other models:

- Six four-wheel tractor-drawn scrapers with struck capacities of 8, 10, 15, 20, 26, and 30 cu yd. The 30-yd scraper has a pay load capacity of 42 tons.
- Two two-wheel scraper and two-wheel tractor combinations with struck capacities of 7 and 15 cu yd.
- One two-wheel scraper and four-wheel tractor combination, with a 20 cu yd struck capacity.
- Two two-wheel tractor and two-wheel rear-dump combinations of 14 and 21 cu yd capacities, struck measure.
- One 21 cu yd (struck) rear dump with four-wheel tractor combination.

Both the CW-226 and the CW-220 are powered by a 375 horsepower GM 6-110T diesel engine through an Allison automatic transmission and torque converter. It provides top horsepower at rated capacity and road speeds ranging up to 35 miles per hour with full load according to the manufacturer.

One of the outstanding features of the two new units is Curtiss-Wright's exclusive "Roto-Gear" steer. This is a hydraulic steering system which provides constant torque throughout the entire steering cycle as well as instant response and fingertip control throughout the entire 180 deg steering arc.

To increase equipment utility, both the CW-226 and the CW-220 scrapers are interchangeable with a 35-ton rear dump unit, which utilizes a Torqmatic brake for hydraulic retarding and control on steep grades, and incorporates other new Curtiss-Wright features.

The CW-226 and CW-220 also incorporate a new "unit" design concept, convenient access to major components and easy maintenance and serviceless downtime on normal maintenance and repairs. A new front hinged "tilt-up" hood, secured with two quick-opening aircraft type latches, gives quick and easy access to the entire engine.

The new units, as well as other tractor drawn and self-propelled units in the line, incorporate other new design features for more high speed earth moving. They are engineered for correct weight distribution in all phases of operation. This provides greater on-the-job traction and mobility, the manufacturer says.

And for fast, clean unloading, the units have positive forward roll-out ejection and high apron lift. Curtiss Wright Corp., South Bend Division, South Bend, Ind.

Publications

Wire Rope Handbook Available

A 190-page loose leaf, "Blue Book" of Wire Rope. Lists types and classifications, explains rope lay, tells when and where, how and why various types of rope should be used. Has section on the rated capacities of wire rope. Contains information on inspection, correct spooling, multiple reeving, sheave and drum groove tolerances, sheave maintenance, wire rope lubrication, the use and abuse of wire rope. Free to users of wire rope. Request G-16 BLUE BOOK OF WIRE ROPE. MACWHYTE WIRE ROPE CO., KENOSHA, WIS.

Insulated cable—Hints for electrical cable buyers on selecting proper cable construction: "How to Choose Insulated Cable." 20-page bulletin, No. 1117. OKONITE CO., PASSAIC, N. J.

Metal-clad switchgear—Information on operation, characteristics and application of G. E's line of indoor and outdoor metal-clad switchgear. 40-page bulletin, No. GEA-5664c. GENERAL ELECTRIC CO., SCHENECTADY 5, N. Y.

Underfloor electrical distribution—Underfloor duct system of structural concrete floors, including design and installation suggestions. 52-page catalog. GATEWAY ENGINEERING CO., 3233 WEST GRAND AVE., CHICAGO 51, ILL.

Making wire—A trip through a wire mill described in detail in a color sound movie, "The Red Strand." Running time 22½ minutes. LESCHEN WIRE ROPE DIVISION, H. K. PORTER CO., INC., 2727 HAMILTON AVE., ST. LOUIS 12, MO.

Open-web joists—Specifications and descriptions of open-web steel joists, for construction of lightweight floor and roof systems, including short-span, long-span and electrochannel types. 56-page manual, No. 3001-N. CICO STEEL PRODUCTS CORP., 5601 WEST 26TH ST., CHICAGO 50, ILL.

Flashing—Properties of Nervastral Rigid, a corrosionproof, impermeable, and formable sheet flashing. 8-page bulletin No. 135. RUBBER & PLASTICS COMPOUND CO., INC., 10 ROCKEFELLER PLAZA, NEW YORK 20, N. Y.

Aluminum grating—Load tables and engineering data on three types of aluminum grating: roll-lock, riveted and pressure-locked. 8 pages. KERRIGAN IRON WORKS, INC., NASHVILLE, TENN.

Spray tank—Facts and diagrams on the Model 101 bituminous utility spray tank. Used for repairing rural roads, patching city streets, spraying driveways and parking lots and for fogging the surface in front of a paver. 4-page bulletin JJ-5. LITTLEFORD BROS., INC., 453 E. PEARL ST., CINCINNATI 2, OHIO.

Cooling coils—Complete line of Herman Nelson cooling coils, including construction specifications, dimensional data, surface charts, circuiting diagrams. 50-page bulletin No. 880. AMERICAN AIR FILTER CO., INC., LOUISVILLE, KY.

4-D

WROUGHT IRON PIPE SOIL, WASTE, VENTS AND DOWNSPOUTS cuts maintenance/ installation costs

HERE'S WHY:

- optimum corrosion resistance
- needs no protective coating
- meets building code requirements
- resists shock and vibration
- saves space as Durham system
- long random lengths available
- fewer joints required
- fewer hangers needed
- less labor expended
- leak-proof sanitary joints
- no internal flaking, clogging
- low cost per year of service

Write for technical data on specific applications

BYERS 4-D WROUGHT IRON

Tubular and Flat Rolled Products

A. M. Byers Co., Pittsburgh 22, Pa.

Nello Teer: Contractors Must Be Better

"I love contracting. But if all I got out of it was fun, I'd quit the business and get my fun some easier way," says the new ARBA president.

Young enough to be progressive, seasoned enough to be steady, handsome enough to play the lead in a movie, rugged enough to handle $20 million worth of construction a year, all around the globe, a construction stiff in Ivy League clothes with Ivy League manners: that's Nello Teer, Jr., 44-year-old president of Nello L. Teer Co., Durham, N. C.

At Dallas last week he took over the presidency of the American Road Builders Association, another in a long list of offices he has held in construction industry associations. Mr. Teer was a vice-president of ARBA; he is a national director of the Associated General Contractors and a director of the Associated Pennsylvania Constructors; he's a past president of the Carolina Road Builders Association, headed the contractors division of the ARBA and is a former director of the Carolinas Branch of the AGC.

Being chosen to head ARBA—an organization devoted to the betterment of U.S. roads—has a double significance to Mr. Teer. He is the youngest man to hold that office in the 57-year history of the group. And he will hold the presidency of the ARBA during the year that his own firm is celebrating its Golden Anniversary.

The Teer Co. was founded in 1909 by Nello Teer, Sr., a determined individualist who saw no reason why a fourth grade education or a missing right arm (he lost it at eleven while working in a brick yard) should keep him from success. The spirit that keeps the older Teer still active and interested in construction work at 70 has been passed on to Nello, Jr., and to his 38-year-old brother, Dillard, a vice-president in the company.

• **Many financial interests**—Teer enterprises are not limited to the Durham company. They include ownership of asphalt plants, rock quarries, an equipment company, a Panamanian construction company and a railroad.

While none of these enterprises is the largest in its field, none is small. Teer quarries produced more than 2½ million tons of processed stone last year—one quarry alone turned out almost 1 million tons of graded material that went into highway projects within a 25-mile radius of Durham.

The Durham and Southern Railway Co. is a short line railroad that was taken over by the Teers in 1952. In its 62-mile length between Durham and Dunn, it bridges three major southern railroads. The line has always been a profit-making venture; since control of it was assumed by the Teers, its profits have more than doubled.

Central Engineering and Contracting Corp. owns the Teer construction equipment—more than $15 million worth. In addition, this company occasionally handles construction projects. Among its jobs have been a section of the Massachusetts Turnpike and an 8,000-ft-long tailrace cut below Roanoke Rapids Dam.

Nello L. Teer Co. of Central America, Inc. has been actively engaged in highway and heavy construction work throughout Central America since 1955. It has built more than 40 miles of road through the rugged mountains of Guatemala, much of it at mile-high elevations. It has already constructed 40 miles of the Rama Road, which will cross Nicaragua to connect the Atlantic and Pacific Oceans, and is currently constructing an additional 20-mile stretch. This work is being done in a jungle rain forest area that gets as much as 300 in. of rainfall annually.

• **The big interest**—Impressive as these records of subsidiary Teer enterprises are, they take a back seat to the record of the parent firm, Nello L. Teer Co. This outfit grosses more than $20 million annually—about half of it in dam, airport and dredging operations and the rest in highway construction. In road work, the firm claims a top position: it has built more than 8,500 miles.

Businessmen

"A man who bids a job just to get a job is just plain nuts."

In addition, the company has built dams in Pennsylvania, paved airports in Iceland and dredged canals in Virginia. It is one of the five firms operating under the name of Atlas Constructors which, since 1951, have been constructing airports in French Morocco. This work is just now being completed, at a value that tops the $300-million mark.

In handling such farflung and diversified operations, Teer companies have more than 1,400 pieces of equipment and often more than 2,000 employees.

• **The boss works**—Nello Teer, Jr. runs all the companies. His father gave him a good start and today he has plenty of competent help, but he was not content to coast on his father's reputation and he does not leave all the work to his assistants.

Every bid made up by a Teer company is checked by Nello, Jr. personally. He visits every project being handled at regular intervals—and the visits are not mere inspection tours. Nello, Jr. negotiates all contracts, helps set up the jobs, assists his superintendents in solving job problems.

He travels in a company-owned, twin-engine airplane, knows what it is to get up at 4:00 a.m. and work until 9:00 or 10:00 p.m.

He, his wife and his four children have lived for years on a 50-acre estate on the outskirts of Durham in a house so large that Nello admits he doesn't know how many rooms it has. His oldest daughter's two children make him a very young grandfather.

• **For fun, and profit**—Nello, Jr. is dedicated to the proposition that men work to make money. "It's wonderful for a man to make important contributions to his chosen field," he says, "but I don't think that the importance of any contribution has been lessened because the contributor made money from it. In fact, to me, a truly successful man is one who can make money while he is doing some good."

To make money, he says, a contractor must be primarily a business man. If he can be an engineer and a business man, too, so much the better. But if it has to be one or the other, there is no question about where Nello Teer stands.

"Today's contractor must know not just the fundamentals of running a business. He must know business administration in detail. More than any other entrepreneurs, the contractor must understand cost accounting and cost records," he says. "A manufacturer who underprices his product can raise his price when he discovers his mistake. The contractor can't. Each job is an entity. If a mistake is made on a bid, the job stands to lose money. And if the lessons learned from one job aren't carried over to the next, a contractor can't stay in business."

Nello Teer believes many contractors today are facing disaster because of their ignorance of, or unwillingness to face, three major considerations: taxes, depreciation and profit.

On taxes—"It doesn't matter how much money a man makes; if he doesn't know his tax picture and get all the expert help he needs, he can lose everything to the tax collector."

On depreciation—"Many contractors forget that today equipment is expensive. The man who bids a job or figures his job profits without first allowing for equipment replacement is just digging himself a tunnel to the poorhouse."

On profits—"A man who bids a job just to get a job—a man who hopes for a miracle to make him his profit—is just plain nuts. We won't bid a job unless we can see 10% in it. Then if we make 5%, we're doing well."

ARBA's new president has this to say about highway construction:

"Money is the big problem. Many states have always been short, and their condition will get worse if something isn't done." As far as the interstate pro-

4-D

WROUGHT IRON CONDUIT delivers low-cost uninterrupted service

WHERE TO USE IT:

- direct burial in earth
- burial in concrete
- submarine cables
- offshore platforms
- bridge structures
- industrial plants

HERE'S WHY:

- optimum corrosion resistance
- no internal flaking or clogging
- impact resistance
- easy fabrication
- UL approved
- sherardized, MVC-1 coating
- black or hot dip galvanized finish
- all pipe sizes available
- long random lengths available
- fewer joints necessary
- black or galvanized threads

Write for technical data on specific applications

BYERS 4-D WROUGHT IRON

Tubular and Flat Rolled Products

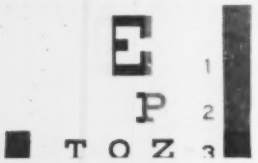
A. M. Byers Co., Pittsburgh 22, Pa.

NOW AVAILABLE!

New drafting films made with Du Pont Mylar® resist rough handling . . . safeguard your investment

HIGH TEAR STRENGTH . . . withstands roughest handling, many reproductions.

OUTSTANDING STABILITY . . . won't dry out or shrink . . . remains waterproof.



SUPERIOR TRANSLUCENCY . . . faster, more accurate printing . . . fiber-free.

GREATER FLEXIBILITY . . . rolls up repeatedly without cracking . . . lies flat.

Now you can safeguard your investment in costly original drawings by using the new pencil and ink drafting films made with Du Pont "Mylar"* polyester film. What's more, these crack-resistant drafting films *cost no more* than many grades of cloth!

Look at the remarkable combination of benefits found in these new drafting films! They resist tearing . . . won't embrittle with heat used in reproduction . . . won't yellow with age . . . won't soak up moisture or grease from hands . . . remain waterproof. Next time you order, specify drafting film made with Du Pont "Mylar".

* "Mylar" is a registered trademark for Du Pont's brand of polyester film. Du Pont makes the film material "Mylar"; most leading manufacturers of drafting materials are now offering various kinds of films made with Du Pont "Mylar".

SEND FOR FREE SAMPLES. See for yourself the many performance advantages you get with new drafting films made with "Mylar" polyester film. Send for your sample sheets today! Write E. I. du Pont de Nemours & Co. (Inc.), Film Dept., Room ER-1, Wilmington 98, Delaware.

DU PONT

BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

DU PONT MYLAR® POLYESTER FILM

gram is concerned, that's going to bog down for sure if steps aren't taken to provide funds. The highway trust fund is running out of money, and when the Byrd amendment comes back into effect at the end of the year, there just isn't going to be anything to build roads with.

"One of the principal objectives of the ARBA this year must be to assist in finding ways to raise money for highway construction."

Mr. Teer has two other objectives as ARBA president:

- He will try to convince equipment manufacturers who do national advertising in mass media that they must help to inform the public on the workings of the highway program and on its importance.
- He will try to convince contractors that they should not bid too low.

"I love contracting as much as anyone," says Nello Teer, Jr., "but if all I got out it was fun, I'd quit the business and get my fun some easier way. And any other contractor with any sense will do the same thing."

• He quit school—Nello Teer studied engineering at the University of North Carolina. His ambition was to follow in his father's footsteps as a contractor. In the middle of his senior year—after three and a half years of average work—young Nello realized his engineering course was not training him for business.

He appealed to the dean and got nowhere. There was no provision in the curriculum for giving engineering students much more than engineering courses. And these courses left a gap that Nello Teer wanted to fill.

To get the courses in accounting, business law and business administration he felt necessary, he transferred to the school of commerce. Here, again, he was frustrated. The courses prerequisite to those he wanted would take two years to get. So he quit school.

As a result of this experience, he later became a prime mover in the effort to start construction engineering courses designed to prepare engineers for construction business.

His father told young Nello that if he wanted to quit school, he was on his own—at least until he had proved himself. So he took over a large service station in Durham. And, in a depression year, he made it pay. At the end of the year he sold his interest for a profit and joined his father.

From the start, Nello, Jr. was given increasing responsibility and authority. And gradually, Nello, Sr. turned his business over to his sons. The rest of the record speaks for itself.

California Names Wright To High Public Works Job

California's new Democratic governor, Edmund G. Brown reached all the way to New York to fill the $18,500-a-year position of deputy director of his State Department of Public Works.

He chose James E. Wright, who served under former-Gov. Averell Harriman as assistant superintendent in charge of fiscal and administrative management of New York's Department of Public Works.

Governor Brown appointed his northern California campaign manager, Frank Chambers, to the $13,800-a-year post of secretary of the State Highway Commission.

The new director of California's Department of Public Works is Robert Bradford, a former director of the Sacramento Redevelopment Agency and official of the General Services Administration (ENR Jan. 8, p. 64).

John Mullen Honored By AGC of Minnesota

John Mullen, of St. Paul, executive secretary of the Minnesota Good Roads association, was presented an honorary membership in the Associated General Contractors of Minnesota.

Mr. Mullen was president of Mullen & Nelson, Minneapolis general contractors, from 1925 to 1952. In 1909 he was named deputy state engineer for roads and played a major part in developing Minnesota's trunk highway system. He became deputy highway commissioner and chief engineer in 1917, serving until 1925 when he entered the contracting business.

Careers

Honors

Col. Albert E. Stoltz, retiring director of the U. S. Air Force Academy Construction Agency, Colorado Springs, Colo., has been awarded the Distinguished Service Medal—the nation's highest peacetime decoration. One of the foremost construction authorities in the Armed Forces, Col. Stoltz directed supervision of all planning, designing and building of the Academy which is now more than 90% completed. His successor is Col. James A. Barnett, former chief of the operations division.

Retirements

Col. Ray Adams, chief of staff of the Army Engineer Center, Ft. Belvoir, Va., has retired from active duty.

H. E. Hedger, chief engineer of the Los Angeles County Flood Control District, has retired.

4-D

WROUGHT IRON RADIANT HEATING SYSTEMS whip corrosion, cut heating costs

WHERE TO USE IT:

- schools
- churches
- hospitals
- toll houses
- administration buildings
- commercial buildings
- aircraft hangars
- garages
- lobbies
- locker rooms

WHY 4-D WROUGHT IRON?

- built-in corrosion resistance
- good heat transfer properties
- rugged strength
- crushproof
- no thermal stresses with concrete
- good bending properties
- welds soundly, easily
- leakproof
- lowest cost per year of service

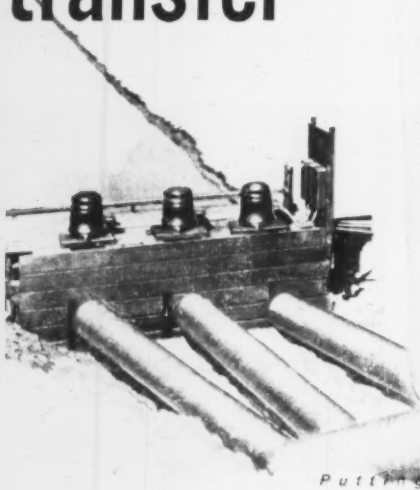
Write for technical data on specific applications

BYERS 4-D WROUGHT IRON

Tubular and Flat Rolled Products

A. M. Byers Co., Pittsburgh 22, Pa.

for effective liquid transfer



For effective liquid transfer there are several methods. But for moving water in volume, a most efficient, dependable and truly economical means is the Peerless Hydro-Foil pump. In all the big jobs: municipal or industrial water supply, condenser cooling service in steam plants, river and canal diversion, flood control – Peerless Hydro-Foil is the leader. It has outstanding head-capacity characteristics, it's available in mixed and axial flow types, it performs equally well in continuous or intermittent duty. With capacities from 600 gpm to 300 mgd and with head ranges to 60 ft., the Peerless Hydro-Foil is "the big pump for the big jobs."

WRITE FOR ILLUSTRATED BULLETIN No. B-148

PEERLESS PUMPS

fmc FOOD MACHINERY AND CHEMICAL CORPORATION

FOOD MACHINERY AND CHEMICAL CORPORATION

Peerless Pump Division

Plants: LOS ANGELES 31, CALIFORNIA and INDIANAPOLIS 8, INDIANA

Offices: New York, Cleveland, Chicago, St. Louis, San Francisco, Atlanta, Plainview, Lubbock, Phoenix, Albuquerque, Los Angeles, Fresno. **Distributors in Principal Cities.** Consult your telephone directory.

Books

Big Bridge in Pictures

MIGHTY MAC, THE OFFICIAL PICTURE HISTORY OF THE MACKINAC BRIDGE—by Lawrence A. Rubin. 155 pp. Wayne State University Press, Detroit 2, Mich. $4.95.

The Mackinac Bridge, opened to traffic in November 1957, has the second longest main span in the world—3,800 ft compared to 4,200 ft on San Francisco's Golden Gate Bridge. But measured from anchorage to anchorage, it takes first rank by a considerable margin—8,614 ft compared to Golden Gate's 6,450.

How this great bridge was created from foundation to finished roadway is told in fine construction pictures with informative pictures assembled from the official files by the author. In addition, an introduction reviews the history of the site and the problems of planning and financing the structure. A brief discussion of the bridge's design by D. B. Steinman, the consulting engineer, sets the stage for the construction pictures which constitute the bulk of the book.

Laboratory Design

BUILDINGS FOR RESEARCH—224 pp. F. W. Dodge Corp., New York 18, N.Y. $9.50.

This profusely illustrated volume should be a useful reference work for nonspecialists in laboratory design. It consists of articles published in recent years in ARCHITECTURAL RECORD.

The book is divided into four parts. Part I consists of articles on planning and design objectives and an analysis of several plot plans.

The remaining parts are devoted to industrial, nuclear, and institutional laboratories. These articles deal with the problems that confronted designers, owners and builders of 44 new research buildings and their solutions.

Buildings for research generally require the most expensive type of construction. But they can easily become obsolete. It is therefore necessary to design and build them to meet possible future conditions. This keeps depreciation from becoming too costly.

Just Published . . .

WATER POLLUTION CONTROL PROGRAM OF THE UNITED STATES PUBLIC HEALTH SERVICE, 1957-1958. Public Health Service, Washington 25, D. C.

AMERICAN PLANNING CIVIC ANNUAL—Edited by Harlean James and Dora A. Padgett. 217 pp., American Planning & Civic Assoc., 901 Union Trust Building, Washington 5, D. C.

AMERICAN STANDARD GRAPHICAL SYMBOLS FOR FLUID POWER DIAGRAMS—ASA Y32.10-1958. The American Society of Mechanical Engineers, 29 W. 39th St., New York 18, N. Y., $1.50.

FOLIO OF MAPS OF RED RIVER—Mississippi River Commission, Corps of Engineers, U. S. Army, P.O. Box 80, Vicksburg, Miss. $1.00.

PROCEEDINGS OF THE 12TH PURDUE INDUSTRIAL WASTE CONFERENCE—Dean G. A. Hawkins, Engineering Administration Building, Purdue University, Lafayette, Ind. $2.50.

PLASTICS AS MATERIALS OF CONSTRUCTION—by L. K. Arnold. Engineering Report No. 28, Iowa State College, Ames, Iowa. 25 cents.

PLASTIC BEHAVIOR OF STRUCTURAL MEMBERS AND FRAMES—by George C. Driscoll, Jr. and Lynn S. Beedle. The James F. Lincoln Arc Welding Foundation, P.O. Box 3035, Cleveland 17, Ohio.

EFFECTIVENESS OF MINERAL ADMIXTURES IN PREVENTING EXCESSIVE EXPANSION OF CONCRETE DUE TO ALKALI-AGGREGATE REACTION—U.S. Army Engineers Waterways Experiment Station, Vicksburg, Miss. Report No. 6-481. 75 cents.

STANDARDS OF THE EXPANSION JOINT MANUFACTURERS ASSOCIATION — Expansion Joint Manufacturers Assoc., 53 Park Place, New York 7, N. Y. $1.00.

THE HOUSING AND NEIGHBORHOOD RENEWAL TOOL CHEST—A guide to the use of existing legislative and administrative provisions in the development of communities. State of New York, Division of Housing, Bureau of Research and Statistics.

STRUCTURAL CONCRETE HOSPITALS—Cement and Concrete Association, 52 Grosvenor Gardens, London SW1. Free.

SAFETY CODE FOR ELEVATORS, DUMBWAITERS AND ESCALATORS, AMERICAN STANDARD SUPPLEMENT—ASA A17.1a-1957. American Society of Mechanical Engineers, 29 West 39th St., New York 18, N. Y. $1.00.

RAIN PENETRATION OF UNIT MASONRY—by T. Ritchie and W. G. Plewes. NRC 4336. National Research Council of Canada, Division of Building Research, Ottawa. 75 cents.

HIGHWAY BRIDGES OF STEEL—by American Institute of Steel Construction, 101 Park Ave., New York 17, N. Y. Free.

RESIDENTIAL WIRING HANDBOOK—American Standards Association, Dept. PR28, 70 East 45th St., New York, N. Y. 25 cents.

PLASTIC ANALYSIS AND DESIGN OF SQUARE RIGID FRAME KNEES—by Fisher, Driscoll and Beedle. Welding Research Council, Engineering Foundation, 29 West 39th St., New York 18, N. Y.

CHAMBERS'S TECHNICAL DICTIONARY—Revised edition. 1028 pp. The Macmillan Company, 60 Fifth Ave., New York 11, N. Y. $7.50.

UNIFORM BUILDING CODE 1958 EDITION—404 pp. International Conference of Building Officials, 610 South Broadway, Los Angeles 14, Calif. $6.00.

4-D

WROUGHT IRON SNOW MELTING SYSTEMS assure permanent winter traffic safety

WHERE TO USE IT:

- hazardous highway areas
- highway approaches
- toll booth areas
- airport runways
- hangar door aprons
- airport taxi strips
- passenger loading areas
- ramps
- "drive-in" banks
- driveways
- marquees, balconies
- loading docks
- sidewalks

WHY 4-D WROUGHT IRON?

- built-in corrosion resistance
- good heat transfer properties
- rugged strength
- crushproof
- no thermal stresses with concrete
- good bending properties
- welds soundly, easily
- leakproof
- lowest cost per year of service

Write for technical data on specific applications

BYERS 4-D WROUGHT IRON

Tubular and Flat Rolled Products

A. M. Byers Co., Pittsburgh 22, Pa.

WROUGHT IRON IN ROAD-BUILDING APPLICATIONS keeps maintenance to a minimum

WHERE TO USE IT:

- drainage lines
- electrical conduit
- snow melting systems
- hand railings
- curb plates
- scuppers
- bridge decks
- service building piping
- pier protection
- lamp posts
- tie bars, dowels
- fasteners

Write for technical data on specific applications

BYERS 4-D WROUGHT IRON

Tubular and Flat Rolled Products

A. M. Byers Co., Pittsburgh 22, Pa.

Montana Highway Grading and Bridges . . .

Averages $48,058 a Mile

This $428,728 contract to Naranche & Konda, Butte, Mont., is for grading and surfacing an 8.878-mile stretch of 29.34-ft roadway on the West Gallatin Highway in Montana, and for 0.043 miles of bridges, a total of 8.921 miles at an average cost of $48,058 a mile.

The award by the Bureau of Public Roads, U.S. Department of Commerce, Portland, Ore., is 7.5% below the estimate. W. B. Huffine is division engineer at Helena, Mont.

Largest item in the contract (21%) is 235,000 cu yd of unclassified excavation at 38¢ a yd. The low bid on this item was 37¢ a cu yd, and the high bid 70¢ a yd.

The thirteen bids included:

1C Naranche & Konda, Butte, Mont	$429,728
2 Union Constr. Co., Inc., Missoula, Mont	443,511
13 Nilson-Smith Constr. Co., Great Falls, Mont	599,294

Bids: 11 4 58 Items	Unit	Quantity	Unit Prices 1C	2
Extra & misc work	ls	job	$2,000	$2,000
Clear & grub	ac	60	150.00	300.00
pit	ac	2	150.00	300.00
Trees & snags, select removal	sf	100	5.00	5.00
Excavation, unclassified	cy	235,000	0.38	0.37
Borrow topping, selected, case 1	cy	86,000	0.59	0.55
pit stripping, case 1	cy	3,700	0.40	0.40
Excavation, structural	cy	1,000	2.00	2.00
bridge	cy	550	3.00	16.00
Foundation fill	cy	1,000	5.00	1.00
Overhaul	sta yd	542,000	0.015	0.02
	yd mi	7,000	0.20	0.26
of borrow, case 1	yd mi	63,000	0.20	0.22
Water	unit	6,000	1.00	1.50
Waterplant, provide & maintain	ls	job	2,500	1,500
Rolling, tamp roller	hr	1,300	7.00	9.00
pneu-tired roller	hr	700	9.00	8.00
Roadways, obliterate old	unit	166	5.00	12.00
Crushed agg base, grading E	t	36,000	1.30	1.30
Blotter matl, bit pres treat	t	2,600	4.00	3.50
Asph, gr MC-2, bit surf treat	gal	56,000	0.18	0.17
gr MC-4, bit surf treat	gal	53,000	0.18	0.19
Concrete, class A	cy	547	94.00	102.00
Steel, reinforcing	lb	115,000	0.18	0.18
bridge railing	lf	484	11.00	10.00
Bit ctd corr met pipe, or equal				
24"	lf	4,118	10.00	7.30
30"	lf	184	15.00	8.50
36"	lf	124	20.00	12.00
48"	lf	108	35.00	18.00
Struct plate pipe arch, 12'10" span, 8'4" rise 8 gage	lf	70	120.00	95.00
Culv pipe, remov, clean, relay	lf	580	3.00	3.30
remov & stockpl salv	lf	828	2.00	2.20
Existing bridges, remove & dispose	ea	3	1,000	2,000

Awarded: 11 12 58

Commenced: 11 26 58

Completion schedule: 250 cal days, subject to weather shutdowns. Liquidated damages: $100 day

Box Culvert Gets Airport Drain Contract

On Sept. 30 The Greater Rockford Airport Authority, Winnebago County, Ill., took bids three ways for a drainage structure at the airport.

The $112,056 award to Cardinal Construction Co., Rockford, Ill., is on the reinforced concrete box culvert alternate, which was pitted against reinforced concrete pipe and corrugated metal pipe alternates.

On the two pipe alternates, the bids were separated between labor and material costs, whereas the box culvert bids combined these costs.

DeJong, Middaugh and Associates, Rockford, Ill., is the consultant.

The structure is 1,160 ft. long, 10x10 ft inside, 12 ft 4 in. x 12 ft 4 in. outside. Compacted granular backfill around the structure is estimated to contain 6,720 cu yd, truck measure.

Union contract wages included: carpenter, $3.35; concrete finisher, $3.20; tractor operator, $3.20; crane and shovel operator, $3.35; common laborer, $2.50.

Construction commenced Oct. 20; pouring of the culvert was completed Dec. 1.

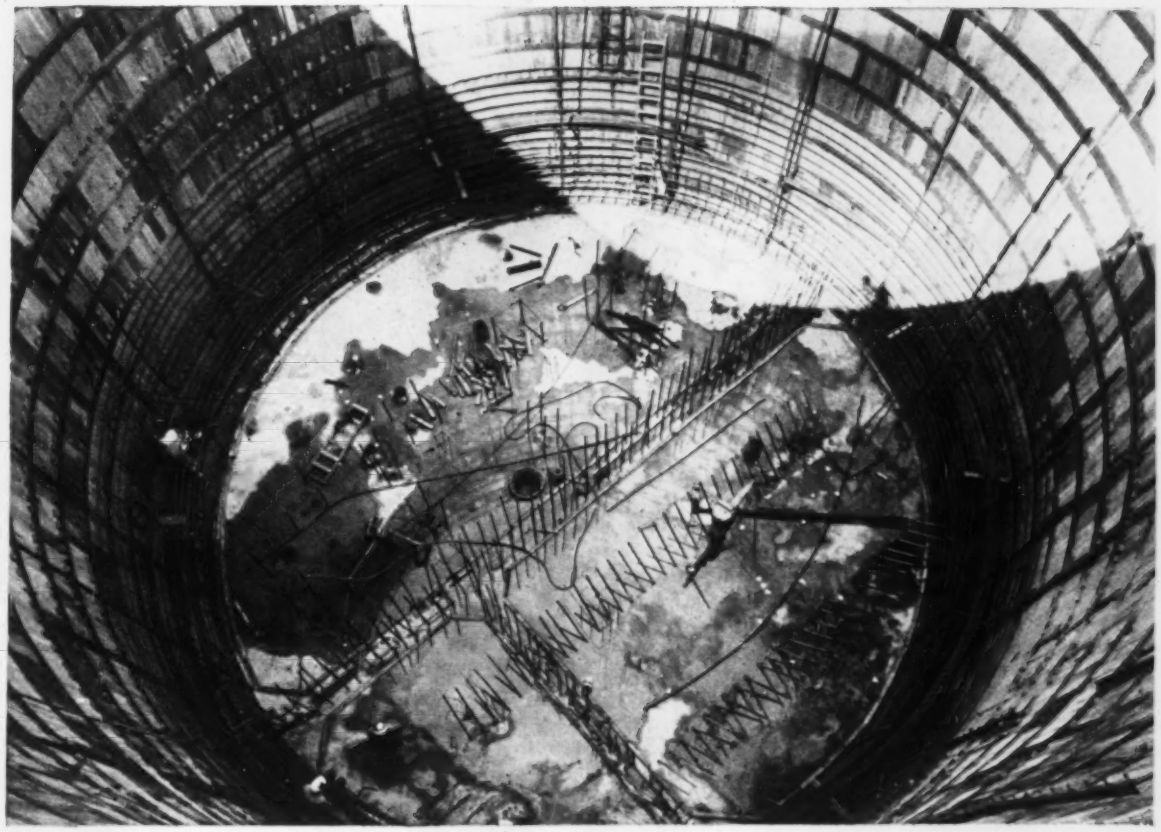
Change prices for backfill were included in the bidding.

RCP Alternate	Material	Labor
1 Anderson Bros., Rockford	$101,674	$40,500
2 Chas. Ind Co., Rockford	103,230	46,300

CMP Alternate		
1 Armco Drainage & Metal Products, Inc., Middletown, Ohio	$70,377	$42,920
2 Hopkins Road Equipment Co., Dixon	85,990	nb
3 Chas. Ind Co., Rockford	86,768	37,120

RC Box Culvert (Contract)	Combined
1C Cardinal Constr. Co., Rockford	$112,056
2 Shappert Engr. Co., Belvidere, Ill	115,002
6 Anderson Bros., Rockford	157,180

Structure Base Bid	Unit	Quantity	Low Bidder	Second Bidder	High Bidder
1 RCP, 132"ø, furn & del	lf	1,160	$87.65	$89.00	$89.00
2 install*	lf	1,160	35.25	40.00	40.00
Total 1 & 2			$122.90	$129.00	$129.00
*incl 10,050 cy gran trench bkfl, truck meas; also all excav.					
Change price, bkfl	cy		$2.00	$0.50	$0.50
3 CMP, 132"ø, furn & del	lf	1,160	$60.67	$74.13	$74.80
4 install*	lf	1,160	37.00	nb	32.00
Total 3 & 4			$97.67		$106.80
*incl 9,170 cy gran trench bkfl, truck meas; also all excav.					
Change price, bkfl	cy		$1.10		$0.50
Less 7" if awarded both					
Box Culvert, RC incl 6,720 cy gran bkfl, truck meas; also all excav, forming, st setting, conc work	lf		$96.90	$99.14	$135.50
Change price, bkfl	cy		$1.35	$1.00	$2.00



New open shaft, ring waler construction bottoms-out in 29 days

Open shaft construction made possible through the use of COMMERCIAL steel ring walers is proving to be an important boon to time-conscious contractors concerned with sub-grade foundation jobs. Another typical case in point is the foundation for the East Nine Mile Pumping Station in the City of Warren, Michigan.

72-FT. DEEP EXCAVATION is shored by 24 nine-segment COMMERCIAL steel ring walers and wood lagging.

"Sunk in hard ground of stiff, moist blue clay, the lined open shaft for the foundation—72' deep with an inside diameter of 55' 10"—was bottomed-out and concreted by the Greenfield Construction Company in just 29 days. And according to James F. Peters, Field Engineer for Greenfield Construction, "COMMERCIAL steel ring walers, and the open shaft construction they made possible, were a most important factor in the on-schedule completion of our foundation project."

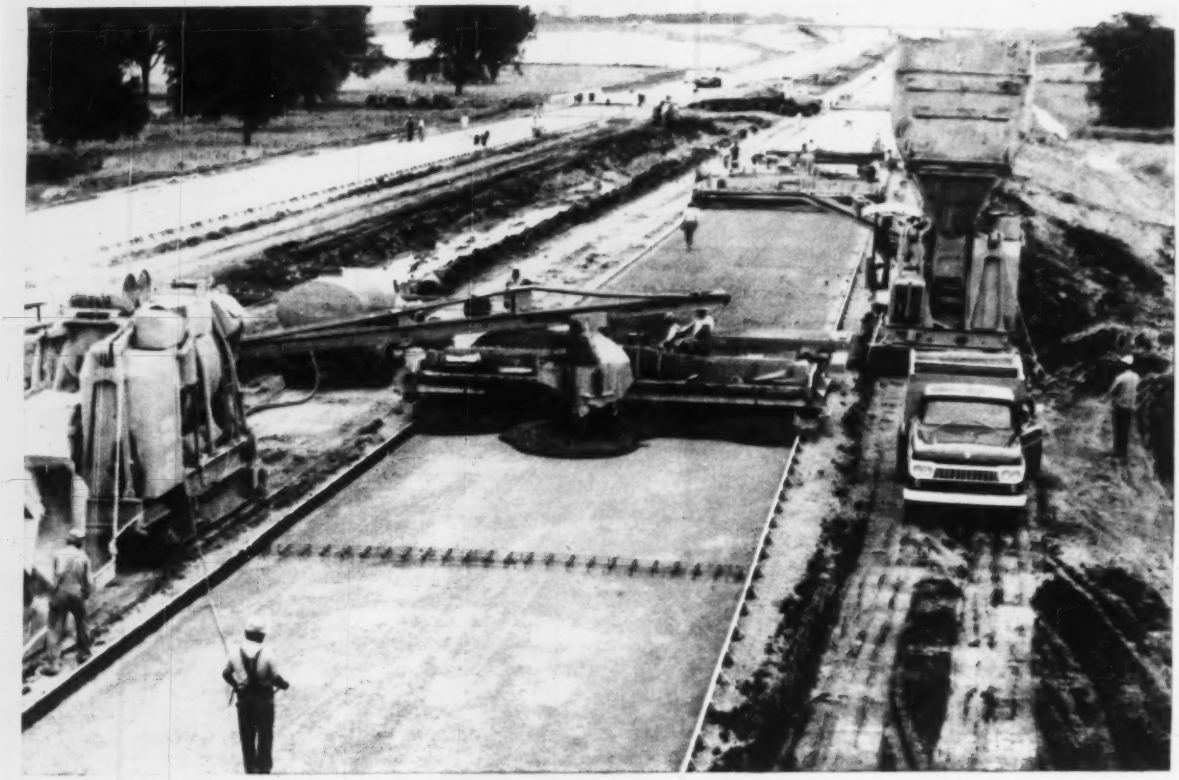
Unusual? Definitely yes when you consider that caisson-type construction used for foundations in this area in the past has frequently involved delays of months and even years because of soils too hard to allow caissons to pass.

Field Engineer Peters commented, in fact, that, "The ground on our particular project was so hard that I feel if we had used a caisson as originally planned it would have 'hung up' at a depth of approximately 25 feet."

The use of COMMERCIAL steel ring walers also eliminated the need for outside forms on the concrete for the project since the rings (set 3' center-to-center) and wood lagging served as a form. The close tolerance fabrication (dimensions to + or − 1/8") of the walers, their easy handling, and still easier installation, not only helped speed progress on the job but involved the services of only four men for actual installation.

For the full story on how COMMERCIAL steel ring walers can work to your time-saving advantage on open shaft or open pit construction for foundations—whether they be large or small—be sure to send for your copy of descriptive Bulletin 300-P1. Address inquiries to Commercial Shearing & Stamping Co., Dept. E-5, Youngstown 1, Ohio.

COMMERCIAL
shearing & stamping



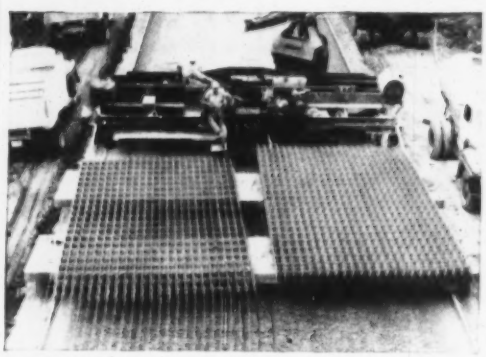
Sheffield's Production and Delivery Is In Step With MOUNTING Highway Demands

Contractors are setting new records in the biggest highway construction program in history. Advanced engineering and new techniques are helping them to accelerate schedules in laying down slab with a backbone of steel.

Sheffield was tuned to this tempo long before it started. Plant expansion was underway before the national highway program was out of the planning stage.

Today Sheffield is meeting the highway program's demand for welded wire fabric wherever and whenever it is called for.

Whether you're working on the highway program or other construction, you can be sure of on schedule delivery of Sheffield steel products. Get in touch with your nearest Sheffield office. Our strategic plant locations are in your favor.



A New Welded Wire Fabric Application Technique — being adopted by contractors across the nation is this pouring-train trailer. Here on Kansas Interstate Highway 35, stacks of welded wire fabric are loaded on the trailer by traveling crane. When the train is underway, only one man is needed to unbalance the sheet and start it into position. The slow job of carrying steel from road shoulder by four men is eliminated.

SHEFFIELD DIVISION

ARMCO STEEL CORPORATION

OTHER DIVISIONS AND SUBSIDIARIES: Armco Division • The National Supply Company • Armco Drainage & Metal Products, Inc. • The Armco International Corporation • Union Wire Rope Corporation • Southwest Steel Products

Materials and Labor Prices

Monthly Market Quotations by ENR Field Reporters

See following ENR issues for OTHER PRICES

- Cement, Aggregate Ready mixed Concrete, Asphalt: Last, Jan. 9; Next, Feb. 5.
- Iron and Steel Products, pipe: Last, Jan. 15; Next, Feb. 12.
- Wood Products, Glass, Explosives, Chemicals: Last, Jan. 22; Next, Feb. 19.
- Wage Rates, Building Board, Lath, Insulation: Last, Dec. 25; Next, Feb. 26.

STRUCTURAL CLAY BUILDING TILE, BRICK AND LIME—DELIVERED

	STRUCTURAL CLAY TILE PARTITION SCORED Per M, lots of 2,000 pieces or over, 3x12x12 In.	4x12x12 In.	8x12x12 In.	STRUCTURAL CLAY TILE LOAD BEARING SCORED Per M, lots of 2,000 pieces or over, 8x12x12 In.	10x12x12 In.	12x12x12 In.	BRICK Per M, In quantity Common backing	Straight hard	LIME Per ton, In paper, Carload lot, Hydrated finishing	Common hydrated	Pulverized or lump
Atlanta	$149 00p	$149 00p	$296 80p	$334 55p			$39 50p	$32 70p	$33 00AR	$25 00AR	$25 00A
Baltimore	217 00	231 00	434 00	491 00	602 00	690 00	36 00k	41 00k	35 60	23 20	
Birmingham	135 00p	152 00p		303 00p	376 00p	465 00p	27 00ff	38 00jj	35 02	22 30	26 32g
Boston	232 00q	248 00r	463 25s	556 00t			41 50p	56 50p	39 20u	31 20v	
Chicago	135 00	145 00	280 00				30 00	32 00	38 00	35 20w	
Cincinnati	205 00y	225 00y	296 00ddd	213 00y	288 00y	314 00y	48 75z	47 00z	28 00y	24 50y	28 00y
Cleveland	200 00	213 00		438 00			40 00	43 00gg	32 75	28 00p	
Dallas	152 00	152 00	300 00	364 50	446 25	552 50	37 5ee	49 00	41 80	28 58	28 50
Denver							21 50	49 50	46 00p	42 00p	46 00p
Detroit	242 00R	258 00R	483 00R	548 00	727 00R	827 00R	47 50p	48 00p	38 00	30 00	30 00
Kansas City	158 00	158 00	312 00	312 00	400 00	500 00	33 00	33 00	36 26	34 26	29 76
Los Angeles	r	r	r	r	r	r	32 00ll		38 00	38 00tt	39 00tt
Minneapolis	192 00p	215 00p	437 00p	215 00ppe			45 00pp	54 00pp	47 00bbe	37 00bbe	49 00bbde
Montreal	170 00qq	178 00qq	325 00qqq	270 00q	400 00q		48 25h	56 30h	39 00	22 00	13 25
New Orleans	186 00	186 00	380 00	380 00			42 00	55 00	44 00	32 00	32 00
New York	176 00ii	188 70ii	283 00ii	285 50ii			44 00p		40 00p	37 00p	
Philadelphia	169 00	180 20	337 00	405 00			30 34	38 42	27 60	25 60	3 17m
Pittsburgh	147 50r	157 50r	295 00r	335 00r	435 00r	500 00r	39 00jj	46 00jj	36 00tt	31 00tt	
St. Louis	172 00n	180 00p	375 00p	401 00p	450 00	621 50	41 50ll	43 00	0 95nn	80nn	1 35z
San Francisco	156 55*	177 10*	235 30dd*				43 00l*	43 00l*	29 24	29 24	31 74
Seattle	235 00p	270 00p	390 00p	265 00ppe			48 00	62 00	52 00bb	38 00bb	4 5nnbb
Toronto	158 00	173 00	336 00	263 00rr	378 00		35 00	63 00	36 00	33 50	33 50

*: F.o.b. yard. •: F.o.b. plant Stockton. •: F.o.b. yard Roxbury. •: Smooth. •: $4.50 del. •: 8 x 12 x 12 in.-6 cell. •: Pulverized hot. •: less 5% disc., 10th. •: 9 x 8 x 12. •: Lumps, $26.72. •: F.o.b. trucks, job site N.Y.C. •: 60 lb sacks. •: Truck load or over. •: $1.00 discount. •: Red face. •: Per bbl., 180 lb. processed, •: 7" x 7" x 12. •: Mason's double hydrated pressure. •: Truck lots. •: Provincial and Municipal tax extra. •: Not used; earthquake danger. •: 8 x 16 x 12. •: less 2% disc., cash. •: Incl. Federal tax. •: Sand lime. •: 5 x 8 x 12. •: Chi •: Pebble; 80 lb sack. •: 50 lb sack. •: LCL. •: 16 x 12 x 12 •: 80% common. •: Smooth. •: less 25¢ disc., cash. •: F.o.b. plant. •: rough; smooth; $40. •: Revised. : Typo. error showed incorrect $7.50 price last month.

PAINT, ROOFING—F. O. B. CARLOAD LOTS

	RED LEAD Per 100 lb. In 600-lb. Approx. bbl. F.O.B. Plant Dry a C	WHITE LEAD Per 100 lb. In 100 lb. cases In oil	READY-MIXED PAINT Per gal., drums Graphite b	Aluminum c	Ferric Oxide d	ROOFING SUPPLIES: Carload lots f.o.b. factory Rolls, slate surfaced, 85 lb. per sq.	Asphalt felt, per 100 lb.	Tar felt, per 100 lb.	Asphalt coating per gal.	Tar pitch 360 lb. bbl. per ton
Atlanta	$14 25	$30 125	$3 50	$3 85	$3 31	$2 35HR	$2 15HR	$2 62	$0 67	$57 75
Baltimore	14 25	29 75	3 00	4 40	3 50	2-7s	1 25	1 25	48	54 25
Birmingham	14 25	30 125	3 90	3 40		3 00f	2 20ff	2 20ff	80ff	45 00ee
Boston	14 25	29 75				3 81g	2 56g	2 83g	56g	58 00g
Chicago	14 25	29 75				4 05u	3 02u	3 32u	46 00ddv	57 70Z
Cincinnati	14 25	29 75				2 50	2 02u	2 42u	42Sy	55 96
Cleveland	14 25	29 75	2 480Sggg	3 296gg	2 901gg	3 31g	2 44u	2 85u	58y	49 00gg
Dallas	14 25	30 50		3 25H		3 00w	3 00u	3 00u	470	66 00hh
Denver	14 25	30 25	3 98	5 20	3 70	2 92	2 20u	2 80u	48ff	50 00
Detroit	14 25	29 75	2 70	3 95	2 70	3 11	2 23u	2 62u	51ff	49 00
Kansas City	14 25	30 50	3 99	3 43	3 01	3 58ii	2 61u	2 61u	71y	
Los Angeles	14 25	30 00	3 30m	4 50m	4 20m	3 20m	2 15mm	f	70my	71
Minneapolis	14 25	29 75*				3 09	2 525u	2 42Su	442u	50 00e
Montreal		24 05	5 02Dffl	5 94Zffl	4 65Effl	5 40	4 65f	4 65f	1 60	4 80I
New Orleans						2 78	1 98	2 85	0 880	
New York	14 25	29 75				3 10	1 87u	2 45u	438z	49 00*
Philadelphia	14 25	29 75	3 60	3 40 3 65	3 50 4 00	3 00 3 30	2 34u	2 54u	37 45	48 54
Pittsburgh	14 25	29 75	2 20eF	2 25eF	2 25eG	3 37x	2 59u		45	
St. Louis	14 25	29 75				3 27nn	2 398A	2 85AA	429y	62 00
San Francisco	14 25	30 00	3 29	4 30	3 50	2 95	1 97aaa	3 10	90ff	54 00
Seattle	14 25	30 25	3 47	4 19eeff		4 02gee	2 50ee		55ee	51 40ee
Toronto			5 00	5 75	5 50	5 15	4 00bbee	2 90e	1 25f	55 00A

*: Delivered. •: Note: Red lead in oil 50% higher than white lead in oil. •: Aver. wt. approx. 425 to 550 lb drums. •: Red lead prices change frequently due to pig lead price changes. Current price eff. 1 22 59. Previous price $15.25, eff. 10 14 58. •: U.S. War Dept. Spec. 3 49A. •: ASTM Spec. D266 31. •: 80% minimum ferric oxide. •: Per 108 sf roll. •: Per 432 sq. ft. •: F.o.b. yard Roxbury. •: Per roll, 65 lb. •: Net carload prices, Minneapolis and vicinity. •: 45 gal containers. •: Over 80% ferric oxide. •: Not used. •: F.o.b. city. •: Per 60 lb roll. •: 6-drum, 50 gal each. •: Per 90-lb roll. •: F.o.b. factory, Chicago. •: Truckload. •: Incl. Federal tax. •: Per 90-lb square. •: Per ton. •: Eff. 10 54 price to contractors $1.25 less. •: Ready-mixed. •: 55-gal container. •: Drums. •: 15 lb. •: Roofers coating and cement. •: LCL, truck delivery. •: Asphalt pitch in 100 lb package. •: 5-gal •: F.o.b. factory. •: Incl. freight. •: Per 324 sf roll. •: Asbestos roof coating. •: 400 lb. barrels. •: ASTM Spec. D362 49. •: 95%. •: Std. black. •: Milt. spec.: E TTP27; I TTV81; G TTP31. •: less 2% disc., cash. •: Per 100 lb. •: Revised.

PLASTER, VERMICULITE AND METAL BUILDING SHEETS & TUBING

	PLASTER: Neat per ton	Gauging per ton	VERMICULITE: Home Insulation pellets	Plaster aggregate	Concrete Aggregate Untreated per bag of 4 cu ft	PERLITE: Plaster Aggregate	Concrete Aggregate Untreated	ALUMINUM SHEETS: Flat .102" th 36"x96" & 48"x144" per lb	Corr roof .032" th 35"x12' per sht	STAINLESS STEEL: SHEET-TYPE 302: 20 ga 48"x96 120" per cwt	28 ga 36"x120" per cwt	COPPER WATER TUBING-TYPE L 2000 ft lots per ft ¾"h	1"h
Atlanta	$31 50mR	$37 50mR	$1 55mn	$1 65mn	$1 80dm	$1 65	$1 65	$0 113R	$xxxxR	$65 00mR	$74 00mR	$16 74ff	$23 44ff
Baltimore	23 50	34 00	0 95	1 15	1 15	1 15	1 05	0 187	0 189e	64 70	73 35	0 1674	0 2313
Birmingham	33 00	39 00	1 55	1 55	1 80f	1 55	1 55j	0 158d	10 48	65 18	74 00	0 1702e	0 2346
Boston	22 00	30 00	1 40	1 40	1 45	1 45	1 50	0 192	29 35h	65 42dd	73 92ddff	0 1702m	0 2346
Chicago	26 50	26 50	1 55	1 60	1 60	1 60	1 60	0 569z	10 294a	65 15ee	73 90ee	0 1702	0 2360
Cincinnati	23 55*	23 55*	1 75*	1 75*	1 75*	1 85	1 90	0 434	9 56	65 28	74 00ff	0 1680ee	0 2355ee
Cleveland	28 00	45 00	1 75k	1 90k	1 90k	1 45	1 45	0 458qq	8 45	65 35ee	74 00ee	17 02ff	23 80ff
Dallas	30 65	32 65	1 05	1 25	1 32	1 21	1 32	0 484	9 517e	65 00	75 00	0 1520	0 2170
Denver	27 00	27 00	1 50	1 40	1 50	1 40	1 55	0 462	10 25	65 32gg	76 00gg	0 1772	24 59
Detroit	28 00	28 00	1 27	1 31	1 40	1 43k	1 50k	0 452a	10 196q	65 15a	79 90a	0 23-0f	0 27
Kansas City	30 00	35 00	1 14	1 18	1 26f	1 18		0 444	23 20gg	67 50	76 25	17 02f	23 80f
Los Angeles	27 00	28 00	1 25k	1 20k	1 25	1 06	1 10	0 486	10 543d	67 02	75 77	0 1702	0 2380
Minneapolis	35 00	35 00	1 55	1 70	1 80	1 40	1 40	0 468	16 23e	65 21	74 21ff	0 1702f	0 2360
Montreal	27 60h	35 60h	1 25	1 40	1 50	1 15r	1 15r	43 95 1	12 10	64 75		0 1827	0 2160
New Orleans	34 00	48 00	1 25	1 25	1 25	1 25	1 25	0 50	8 715	71 50	72 45	0 1702	0 2340
New York	25 25	31 25	1 35	1 30	1 50	1 40	1 40	0 493ad	10 929a	68 58aR	77 33aR	17 02f	23 80f
Philadelphia	23 25	32 00	1 35	1 35	1 40f	1 05	1 05gg	0 44a	9 49a	66 68a	75 77a	15 92	21 76f
Pittsburgh	30 00m	33 00m	1 60m	1 50m	1 55m	1 73	1 73	0 452	9 45	64 00	76 25pp	0 1702	0 1680
St. Louis	29 00	40 00	1 35	1 40ff	1 55	1 60	1 60	0 452	10 25	65 81	72 11y	17 02fmm	21 42fmm
San Francisco	29 50	30 50	1 35	1 35	1 50	1 35o	1 55o	0 502	9 05	67 10	74 60	0 1702	0 2360
Seattle	42 40	45 60	1 55	1 25k	1 55	1 50e		0 51322	9 90	67 02	75 77	0 1680	0 1876
Toronto	28 00	45 50	1 25	1 35	1 40	1 55	0 3965	24 75ar	24 74	66 52		0 2777	0 3016ss

‡trucklots, delivered. †fob warehouse. *fob city. •: delivered. •: O.D. •: ¾" O.D. •: 0.100"th. •: 34" x 60" sheet. •: per 100 ft. •: 5 tons & up; cold roll, anneal & pickled 2B finish. •: incl. Federal tax. •: add 25¢ for pint of additive. •: 1100 & 3003 alloy, mill finish. •: bag of 3 cu ft. •: treated with air entraining agent. •: 2-10M ft. •: fob mill fr equalized with nearest stocking competitor. •: 250 sacks or more. •: 100 sq ft. •: per lb. •: 30 lb bag. •: 36" x 96"; 10.81 lb sh; 48" x 144"; 21.7 lb sh. •: fob plant. •: 19.31 lb sh. •: fob plant. •: 48" x 144". •: 100th. •: 27 gauge. •: 16M lb & up. •: add $1.00 cwt boxing. •: 4 tons & up. •: 26 ga. •: add $2 cwt boxing; $0.75 cwt on skids. •: Theoretical wt for 48" x 96"; 60.4-lb. per sh. •: 300-bag lots. •: 100-lb bag. •: Theoretical wt: 19.7-lb per sh. •: 2". cash. •: skid packed. •: type 304. •: Philadelphia and suburbs. •: less 2". disc. 15 days. •: less 2". disc. 10 days. •: less 2". disc. 10th. •: add 2¢ sq. •: •: less 2% disc. 10 days. •: .021 ga. •: .061" th. •: Per 100 lb. •: crated. •: 15M lb.

Labor and Materials Prices

Monthly Market Quotations by ENR Field Reporters

See following ENR issues for OTHER PRICES

- Cement, Aggregate Ready mixed Concrete, Asphalt: Last, Jan. 8; Next, Feb. 5.
- Iron and Steel Products, pipe: Last, Jan. 15; Next, Feb. 12.
- Wood Products, Glass, Explosives, Chemicals: Last, Dec. 18; Next, Jan. 22.
- Clay Products, Lime, Plaster, Paint, Roofing: Last, Nov. 27; Next, Jan. 29.

HOURLY WAGE RATES—Base rate + fringe benefits

	Bricklayers	Carpenters	Struct. Iron Workers	Hoisting Engineers	Plasterers	Electrical Workers	Steamfitters	Common Labor Building	Common Labor Heavy Const	Truck drivers 1½ T	Truck drivers under 4 cy	Truck drivers over 4 cy
Atlanta	$3.75	$3.10	$3.15+7½[d]	$3.225	$3.25	$3.50+10[e]	$3.35+20[d,ee]	$1.75	$1.75	$1.75	$1.85	$2.10
Baltimore	3.95+10[d]	3.20+7½[d]	3.90+7½[d]	3.80 3.95+10[d,gg]	3.60+7½[d]	3.425+7½[d]	3.30+7½[d]	2.05+7½[d]	2.05+7½[d]	2.00+7½[d]	2.00+7½[d]	2.10+7½[HH]
Birmingham	3.85	2.95	3.35+10[e,ff]	2.77[s]	3.17	3.425	3.40+10[e,ff]	1.75	1.85	1.83	2.02[ff]	2.35[gg]
Boston	3.80+20[e,ii]	3.40+10[d]	3.90+20[e,ii]	3.77½+10[d]	3.65+35[e]	3.70+12[e,ii]	3.20+10[d]	2.55+7[d]	2.60+7[d]	2.455[ii]	2.45[gg]	2.65[ff]
Chicago	3.87½+7½[e]	3.65+20[e,ii]	4.00+16[e]	3.55+5[e]	3.70+23[e]	3.90+12[e]	3.75+22[e,ii]	2.77½+7½[e]	2.77½+7½[e]	2.46+15[e,ii]		
Cincinnati	3.85	3.57½	3.60+10[e,ll]	3.375 3.60	3.62½	3.82+4[e,ll]	3.80+9½[e]	2.62½	2.525	2.45+2½[ll]	2.55+2½[ll]	2.65+2½[ll]
Cleveland	3.865+10[e]	3.89	3.79+10[e]	3.89	3.89	3.95	3.70+19[e,ll]	3.15	3.065	2.75+10[e]	2.75+10[e]	2.75+10[e]
Dallas	3.875	3.175	3.30+7½[e]	3.325	3.625+13[e,ee]	3.375+7½[e]	3.45+8½[e]	1.70	1.70	1.70 2.625[pp]	1.70 2.625[pp]	1.70 2.625[pp]
Denver	3.75	3.34	3.175+7½[e,ll]	3.05	3.475+12½[e,ll]	3.60+14[e,ll]	3.55+10[e,ll]	2.17	2.17	2.30	2.40	2.55
Detroit	3.77+3½[e,ll]	3.40+40[e]	3.75+22½[e,ll]	3.47+25[e]	3.66+34[e,ee]	3.80+35½[e,ll]	3.73½+14[e,ll]	2.65+33[e]	2.80+10[e,ll]	2.80	2.80	2.80
Kansas City	3.85	3.325	3.40	3.345	3.625	3.60+25[e,ll]	3.60+9½[e,ll]	2.355	2.405	2.33	2.33[ee]	2.405[ee]
Los Angeles	3.85+10[e,kk]	3.375+20[e,ii]	3.85+20½[e,kk]	3.41+10[d]	4.00+30[e,ll]	4.15+4[e,kk]	3.89+3½[e]	2.68+10[d]	2.68+10[d]	2.83+20[e,qq]	2.83+20[e,qq]	3.01+20[e,qq]
Minneapolis	3.725	3.30	3.47	3.30	3.40+23[e,ll]	3.38+37[e]	3.42+20[e]	2.55	2.70	2.55	2.55[ee]	2.70[ee]
New Orleans	3.525+5[e]	3.00	3.30+7½[e]	3.125+7½[e]	3.12+5[e]	4.475+7½[e]	3.40+15[e]	1.75	1.75	2.475+7½[d]	2.475+7½[d]	2.475+7½[d]
New York	4.65+43[e,ee]	4.10+31½[d]	4.45+16[e,ii]	4.45+36[e,kk]	4.35+52[e,kk]	3.90+51[e,ll]	4.40+45[e,ll]	3.10+25[e,ll]	3.10+25[e,ll]	2.35+22½[CC]	3.15+23[e,BB]	3.15+23[e,BB]
Philadelphia	4.00+17[e]	3.635	4.75+23½[e,M]	2.595 4.23	4.075+16[e]	4.07½+16[e]	4.10+16½[e]	2.65	2.35		2.57+15½[ee]	
Pittsburgh	4.20+20[e,ii]	3.675+15[e,ll]	4.00+20[e,ii]	3.64+10[d]	3.825+20[e,ii]	4.35+32½[d]	4.00+20[e,ii]	2.45+20[e,ii]	2.30+20[e,ii]	2.37+20[e,ii]	2.51+20[e,ii]	2.61+20[e,ii]
St. Louis	4.05+32½	3.575+10[e]	3.60+7½[e]	3.675[t]	3.80+7½[e]	3.95½+29.5[e,d]	3.92½+27½[e]	2.625+10[e]	2.625+10[e]	2.725+7½[ee]	2.725+7½[ee]	2.75+7½[ee]
San Francisco	4.10+42½[d,ll]	3.30+32½[e,ii]	3.85+20[e,ii]	3.405+10[e]	3.74+52½[e]	3.91+34½[e]	3.70+46[e,ll]	2.685+10[e]	2.685+10[e]	2.81+10[e]	2.75+10[e]	2.89+10[e]
Seattle	4.09+10[e,d]	3.32+10[e,d]	3.40+10[e,d]	3.29+20[e,ii]	3.57+30[e]	3.65+26[e,ll]	3.81+24[e]	2.55+10[d]	2.55+10[d]	2.87+17½[e,ee,qq]	2.87+17½[ee,qq]	3.07+17½[ee,qq]
Montreal	2.20+5[e]	2.10+5[e]	2.25+1[e]	2.00+1[e]	2.35+5[e]	2.20+5[e]	2.32+5[e]	1.50+3[e]	1.50+3[e]	1.50+3[e]	1.50+3[e]	1.50+3[e]
Toronto	2.95+12[e]	2.65+11[e]	2.55+10[e]	2.75+11[e]	2.90+19[e,ll]	3.05+12[e]	2.95+12[e]	1.70+7[e]	1.70+7[e]	1.80+7[e]	1.80+7[e]	1.80+7[e]

	Tractor Operators—Incl. bulldozers— 34-49 hp	70-100 hp	100 & over	Tractor scraper 15-16 cy	Power cranes & shovels ¾ cy	1 cy	1½ cy	Motor grader oper	Air comp oper	Air tool oper
Atlanta	$2.75	$2.90	$2.90	$2.75	$3.275	$3.425	$2.75	$2.675	$2.675	$1.87
Baltimore	3.40 3.55+10[e,d]	3.40 3.55+10[e,d]	3.40 3.55+10[e,d]	3.40 3.55+10[e,d]	3.80 3.95+10[e,d]	3.80 3.95+10[e,d]	3.40 3.55+10[e,d]	2.85 3.00+10[e,d]	2.85 3.00+10[e,d]	2.10+7½[e,d]
Birmingham	2.79	2.79	2.79	2.93	2.93	2.93	2.89	2.52[NN]	1.90	
Boston	3.40+10[e,d]	3.40+10[e,d]	3.40+10[e,d]	3.7750+10[e,d]	3.775+10[d]	3.775+10[d]	3.40+10[e,d]	3.325+10[e,d]	2.60+7[e,d,ss]	
Chicago	3.30 3.45+5[e,d]	3.30 3.45+5[e,d]	3.30 3.45+5[e,d]	3.30+5[e,d]	3.90+5[e,d]	3.90+5[e,d]	3.50+5[e,d]	3.40+5[e,d]	3.55+5[e]	
Cincinnati	3.375	3.375	3.375	3.375	3.375	3.60	3.60	3.60	3.60	
Cleveland	3.64	3.64	3.64	3.64	3.89	3.89	3.64	3.515	3.515	
Dallas	1.70 2.625[pp]	1.70 2.625[pp]	1.70 2.625[pp]	1.70 2.625[pp]	3.05	3.05	1.70 2.625[pp]	1.85	1.85	
Denver	2.30	2.90	2.90	2.90	3.05	3.05	2.90	2.90	2.45	
Detroit	3.50+10[e,d]	3.50+10[e,d]	3.50+10[e,d]	3.50+10[e,d]	3.50+10[e,d]	3.50+10[e,d]	3.50+10[e,d]	3.195+10[e,d]	2.78+25[e,KK]	
Kansas City	2.65	3.10[s]	3.10[s]	3.10[s]	3.345	3.345	3.10	3.10[ee]	2.45	
Los Angeles	3.71+10[e,d]	3.71+10[e,d]	3.71+10[e,d]	3.81+10[e,d]	3.81+10[e,d]	3.81+10[e,d]	3.81+10[e,d]	2.93+10[e,d]	2.89+10[e,d]	
Minneapolis	3.08	3.30[s]		3.30	3.52[s]	3.783[s]	3.08	2.97	2.70	
New Orleans	3.125+7½[e,d]	3.425+7½[e,d]	3.125+7½[e,d]	3.125+7½[e,d]	3.125+7½[e,d]	3.125+7½[e,d]	3.125+7½[e,d]	2.475+7½[e,d]	1.85	
New York	3.825+31[e,ll]	3.825+31[e,ll]	3.825+31[e,ll]	3.95+32[e,ll]	4.70+35[e,ll]	4.70+35[e,ll]	3.95+32[e,ll]	3.95+32[e,ee]	3.55+15[e,MM]	
Philadelphia		2.595 4.23+10[e,d]		2.595 4.23+10[e,d]		2.595 4.23+10[e,d]	2.595 4.23+10[e,d]	2.595 4.23+10[e,d]	2.595 4.23+10[e,d]	2.35
Pittsburgh	3.44+10[e,d]	3.44+10[e,d]	3.44+10[e,d]	3.44+10[e,d]	3.64+10[e,d]	3.64+10[e,d]	3.64+10[e,d]	3.15+10[e,d]	2.30+20[e,ii]	
St. Louis	3.675[t]	3.675[t]	3.675[t]	3.675[t]	3.675[t]	3.675[t]	3.675[t]	3.125[t]	3.125[t]	
San Francisco	3.70+10[e,d]	3.70+10[e,d]	3.70+10[e,d]	3.70+10[e,d]	3.85+10[e,d]	3.85+10[e,d]	3.75+10[e,d]	3.10+10[e,d]	2.953+10[e,d]	
Seattle	3.26+20[e,ii]	3.26+20[e,ii]	3.26+20[e,ii]	3.26+20[e,ii]	3.63+20[e,ii]	3.63+20[e,ii]	3.35+20[e,ii]	2.99+20[e,ii]	2.90+10[e,d]	
Montreal	1.70+4[e]	1.93+4[e]	1.93+4[e]	1.93+4[e]	2.19+5[e]	2.19+5[e]	1.93+4[e]	1.80+4[e]	1.80+4[e]	
Toronto	2.15+9[e]	2.25+9[e]	2.25+9[e]	2.25+9[e]	2.75+11[e]	2.75+11[e]	2.25+9[e]	2.30+9[e]	2.30+9[e]	

ENR Skilled Average (Bricklayers, Carpenters, Iron Workers): $3.791, ENR Common Average $2.504
R: revised.

•[a] 6 hr day. •[b] 7 hr day. •[c] 5% vac. stamp fund plus 12c WF for bricklayers; 4% VF for electricians plus 10c WF, 1% PF. •[d] H & WF. •[e] 10c H & W, 10c VF. •[f] 10c H & W, 7½c VF, 2c Ed, 7½c H & W. •[g] 7½c WF, 1c AF. •[h] WF. •[i] Inc. 4% VF; 1% PF pd by employer. •[k] 10c WF, 10c VP, 5c HP. •[l] 4% VF. •[m] 10c WF, 10c PF. •[n] 7% V & Hol., 3% H & W, 1% PF. •[o] lower rates, straight time; other broken. •[p] 3% WF, 3% PF + 10c in lieu of pd. hol. •[q] 10c WF, 6% V & H, 3% PF. •[r] 4% WF, 20c PF. •[s] 5% W & PF, 4% VF, 1% NC 1% JI, plus 6 PH. •[t] Inc. 10c WF, 1% PF, 1½% apprent. •[u] 1 drum; 2 drums, 2.93. •[v] 20c VF, 17½c PF, 3c Prom., 12c W. •[w] VF. •[x] 2-axle. •[y] 10c WF, 3% HP, 15c V & H. •[z] 15c WF, 15c PF, 20c BF. •[A] 7½c VP, 5c PF, 1½c Ed. F. •[B] 10c H & W & ins., 7% V & H. •[D] 4% VF, 10% WF, 1% PF. •[E] 20c WF, 30c VF. •[F] Plus $4 per day annuity contrib. •[G] 10c WF, 10c VF, 3c prom. •[H] 10c WF, 10c VP, 3% PF, 2% PH. •[I] 5c H & WF, 5c advtg. •[J] 5% WF, 6 PH, 3% PF. •[K] 7½c WF, 2½c AF. •[L] 3% WF, 3% PF, 3% VF, 1% Ed. F. •[M] 15½c WF, 7½c PF. •[N] 1% PF. •[O] 10c WF, 1% PF, 4c AF, 10c VF. •[P] 10c H Ins., 7½c PF, 5c VF. •[Q] 2 drums; 1 drum $3.10 3.25+10c WF. •[R] 10c H & WF, 2c admin, 1c apprent, 5c H & WF, 7c PF. •[T] H & W, VF. •[U] 10c WF, 4% VF, 1% PF, 5c Ind. F. •[V] 4% WF, 4% PF. •[W] 7½c WF, 1½c Ed. F. •[X] 7½c WF, 15c VF, 3% PF. •[Y] 10c H & W, 9c PF, ½ intermediate. •[aa] 7c WF, 15, PF. •[bb] roads, jackhammer; bldg: $3.325+10c. •[cc] less than 2-T. •[dd] 17½c WF, 20c PF, 10c PH, 5c Jt Bd. •[ee] $2.25 wk WF, $2 wk PF. •[ff] 10c H & W, 5c PF. •[gg] 6-8 cy. •[hh] 7½c H & WF, 5c indus. prom. •[ii] 4% WF, 4% PF, 6 PH. •[jj] 2% VF. •[kk] 10c HW, 10c P, ½c AF. •[ll] 10c HW, 10c PF, 5c Trust F, 5c Trade Prom. •[mm] 10c W, 20c 2½c Gen. Ben. •[nn] 7½c WF, 2c EF. •[oo] 10c WF, 3c EF. •[pp] higher rates are union, other taken from min. wage approved by County Comm. Court. •[qq] flatbed. •[rr] under 10 cy. •[ss] over 10 cy. •[tt] 7½c H & W, 7½c P, 5c Ed. F. •[uu] single. •[vv] 7½c H&W, 8c PF. •[ww] 7½c H&W, 10c PF. •[xx] 11c HB 3% WF, 2% PF. •[yy] up to 7500 chassis, 11c WF, 11½c PF, 11 PH. •[zz] 1½ to 3 T. •[AA] 5 tons & over: $2.22. •[BB] 5c H&W, 2½c PF. •[CC] Incl. 2% VF. •[DD] 10c H&W, 10c PF, 5c VP. •[EE] plus $2.25 wk WF. •[MM] 5% WF, 6 PH. •[NN] heavy constr: $2.93. •[OO] 10 wh. 3-axle. •[PP] Euclid. QQ 10c H&W, 10c P

BUILDING BOARD & LATH AND INSULATION—DELIVERED TRUCKLOAD LOTS

	GYPSUM PLASTER BOARD tapered edge per Msq ft ½"	½"	GYPSUM BOARD LATH plain or perf per Msq ft ⅜" x 16" x 48"	GYPSUM SHEATHING tongue & groove per Msq ft ½" x 2' x 8'	FIBER BOARD SHEATHING asph impreg & coat per Msq ft ½" sq ed	½" T&G	FIBER BOARD INSULATION sq edge, paint per Msq ft ½"	MINERAL WOOL INSULATION loose, per 40-lb bag	3" batts per M sf	GLASS FIBER INSULATION loose, per 40-lb bag	3" batts per M sf	ALUMINUM FOIL 60-Kraft 1 side foil per roll of 250 s. f.	Expansible Blanket 2 layers foil per Msq ft
Atlanta	$65.00	$55.00	$42.00	$65.00	$68.00	$127.00	$20.00	$1.50[z]	$70.00	$2.00[b]	$80.00		
Baltimore	51.70[e]	45.55[e]	34.25[e]	55.35[e]	65.00[e]	108.50[e]	60.00[e]	1.30	66.50	1.50	45.00	$4.00[q]	$33.50
Birmingham	68.00	57.00	47.72	75.00	65.00	130.50	81.00	1.40	70.00	1.60	75.00	3.13[q]	
Boston	60.00[m]	50.00[m]	36.00[m]	60.00[m]	65.00[m]	120.00[m]	70.00[m]	1.45[b]	75.00		73.00	5.30	53.50[q]
Chicago	67.00	54.00	45.00	62.00	87.00	123.00	87.00	1.85	80.00		63.65[d]	5.25[q]	
Cincinnati	58.00[c]	42.85[c]	32.05[c]	51.10[c]	70.00[c]	125.00[c]	72.50[c]	1.30	65.00	1.30	76.50	3.12[t]	50.00
Cleveland	62.00	56.50	41.50	65.00	75.00	125.00	80.00	1.35 1.50	72.00		55.00	17.50[o]	55.00
Dallas	55.00	52.50	42.50	60.00	68.75	118.00	68.75	2.00	62.25	1.45	66.15	4.50[q,t]	
Denver	62.00	54.50	41.00	62.00	75.00	126.00[c]	74.00	1.50	65.00[q]	1.75[c]	65.00[q]	5.25[c]	48.65[c]
Detroit	66.00	55.00	43.00	65.00	60.50	100.50	60.50	1.00[b]	55.00	1.95[b]	88.00		
Kansas City	65.00	55.00	30.00		72.00	115.00	75.00	1.40	75.00	2.00	75.08	3.60[d]	53.98[t]
Los Angeles	66.00	60.50	0.33[y]	64.50	75.00	125.00	80.00	70.00[b]	85.00	1.55[s]	64.00	4.40[q]	
Minneapolis	75.00	65.00	0.41[y]	80.00	78.00	130.00	78.00	2.00[q]	80.00	1.80	80.00	5.50	
Montreal	56.00	47.00	36.30	53.00	63.25		63.00	1.50	66.00	1.50	66.00	9.00[q]	56.00
New Orleans	60.00	50.00	45.00	60.00	75.00	130.00	72.50	2.00	65.00[z]				
New York	55.25	47.25	36.25	54.25	75.00	120.00	75.00	1.55[t]	68.50		68.50	4.38[t]	54.50[t]
Philadelphia	55.00	50.55	36.40	52.57	68.75	105.110	55.65		60.70		70.75	5.60 6.34	40.50
Pittsburgh		65.00	40.00		62.50	102.50	57.50	1.05[t]	55.00[t]	1.05[t]	55.00[t]	3.80[q]	38.50
St. Louis	67.00	56.50	40.00	70.00	76.50	121.50	80.00	1.35[t]	75.00	1.65	65.00	4.50[q]	
San Francisco	57.00	48.00	0.35[y]	58.00	68.00	109.00	67.00	1.60	66.50	1.60	66.50	4.95	55.00
Seattle	68.50	57.65	51.05	65.00	74.50	125.00	73.50	1.60	72.00	1.60[p]	50.00[p]	5.25	46.50
Toronto	55.00	47.00	38.00	64.50	75.00		75.00	1.50	62.50		62.50	10.00[o]	46.00

•[a] F.o.b. warehouse. •[b] Semi thick. •[c] 30¢ bag. •[d] 12' to 24' width. •[e] 40¢ kraft paper, 5 Msf, 100 500 rolls. •[f] 20¢ sq ft bag, 4" thick. •[g] Full trailer loads. •[h] 80¢ kraft paper backing 400 rolls or over. •[i] LCL. •[j] 40¢. •[k] 80¢. •[l] 2¢. •[m] 10 ton quantities. •[n] Distributor's siding. •[o] Per Msf roll. •[p] 32¢ bag. •[q] 500 sf. •[r] Per cwt. •[s] 35¢ bag. •[t] 26¢ bag. •[u] Flame proof $75. •[v] F.o.b. city. •[w] Sq. yd. •[x] 30¢ bag. •[y] Spun rock wool, 3½ cu ft bags. •[z] 650 sf. •[B] ton.

MEXICO CITY WAGES & PRICES

Wages, per 8 hr day, av per hr	Dec. '58	Jan. '59
Common labor, building (peons)	1.57	1.57
heavy const (peons)	2.00	2.00
Skilled labor, carpenters 1 cl	3.25	3.25
bricklayers 1 cl	2.87	2.87
struct. ironworkers	4.38	4.38

Pesos, F.o.b. City		Dec. '58	Jan. '59
Struct. steel shapes, fob Monterrey			
I-beams, 3 x 3 x 4"	per metric ton	2400	2400
Reinf. steel, corrugated rods, per ton			
⅜" 1/2" x 11 meters		2000	2200
¾" 1" x 11 meters		2000	2200

		Dec. '58	Jan. '59
Gravel, truckload 3½ cu meters			
Blue gravel		84.00	98.00
Rose gravel		75.00	91.00
Cement, std. port. (Toltera)		240.00	240.00
Lumber, 2" pine	per M ft	2200.00	1900.00
1" pine	per M ft	1900.00	1900.00

RUST-OLEUM®

STOPS RUST!®

and matches ORIGINAL EQUIPMENT

COLORS

Distinctive as your own fingerprint. Accept no substitute.

How much does rusty equipment cost *you?* With Rust-Oleum, you STOP RUST—and you match original equipment colors, too, for long-lasting protection! Words are fine . . . but we want you to actually take the brush and see for yourself how *easy* it is to use Rust-Oleum . . . see how it dries to an *attractive, high-gloss finish* that resists rain, snow, sun, fumes, heat, road grime, and blowing dust and sand. And the same formula can be applied by hot or cold spray. Just check off the color you desire on the coupon and attach it to your business letterhead for a FREE TEST SAMPLE. No cost or obligation.

Your Rust-Oleum Industrial Distributor maintains complete stocks for immediate delivery.

ATTACH COUPON TO YOUR BUSINESS LETTERHEAD FOR FREE TEST SAMPLE

CHECK COLOR TO MATCH YOUR EQUIPMENT

RUST-OLEUM CORPORATION, 2539 Oakton St., Evanston, Ill.

Please send me a FREE TEST SAMPLE in the color checked:

☐ 769 Damp-Proof Red Primer
☐ H-50 Primer
☐ H-5 Black
☐ 2766 White

ALLIS-CHALMERS
☐ H-1 Orange

J. I. CASE
☐ H-6 Flambeau Red
☐ H-28 Desert Sunset

CATERPILLAR
☐ H-4 Yellow

JOHN DEERE
☐ H-3 Green
☐ H-10 Yellow
☐ H-11 Red

MASSEY-HARRIS
☐ H-18 Yellow
☐ H-19 Red
☐ H-23 Straw Yellow

OLIVER
☐ H-12 Green
☐ H-13 Red
☐ H-14 Orange
☐ H-22 Yellow

EUCLID
☐ H-9 Green
☐ H-27 Light Green

FORD
☐ H-20 Gray
☐ H-21 Red

MINNEAPOLIS-MOLINE
☐ H-16 New Prairie Gold
☐ H-17 Red

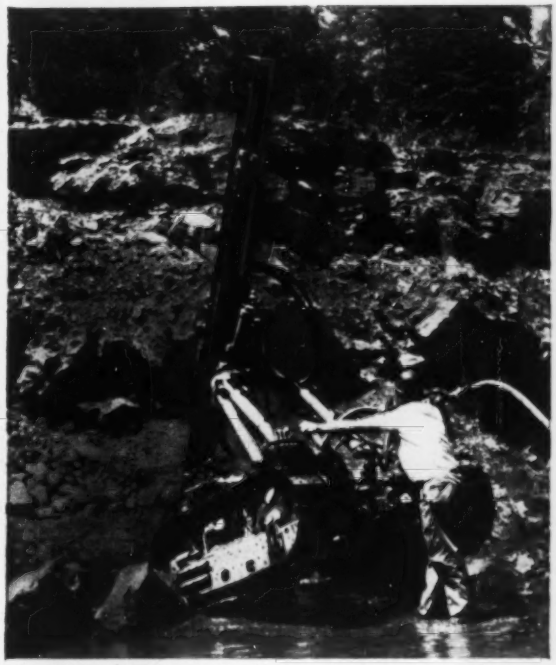
FERGUSON
☐ H-7 Gray

INTERNATIONAL
☐ H-2 Red
☐ H-8 Blue
☐ H-15 Green

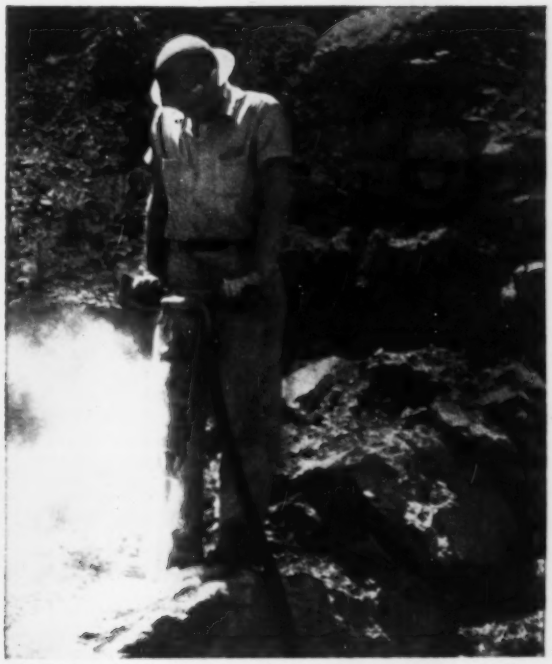
CP "Power Vane" Rotary Compressors have capacities ranging from 125 to 900 cu. ft. The two-wheel 125 cu. ft. "Power Vane" with full length tool boxes is ideal for jobs where maximum portability is a "must." The 900 cu. ft. "Power Vane" below has plenty of reserve for pile-driving or other "heavy air demand" jobs.

CP construction equipment . . .

"puts the push"



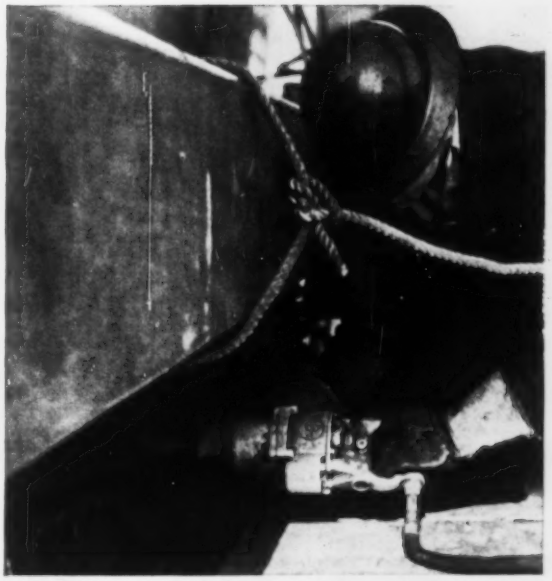
The CP Tracdril tows its air supply; moves quickly and easily over rough ground.



CP Sinker Drills hit hard, handle easy, give maximum penetration and hole-cleaning in the toughest formations.

behind your schedules!

Every piece of CP equipment is built to keep your job rolling. Take CP "Power Vane" Rotaries. They give you day-in, day-out service with a minimum of maintenance and attention. They really "put the push" behind your schedule! And this same cost-cutting "failure-free" feature applies to every piece of CP equipment. Whether you buy or rent – see your CP equipment distributor.



CP-610 Impact Wrench drives high strength bolts to exact tightness. No hand-torquing required. Wrench is 1/3 shorter, 25% lighter than tools of equal rating. 1" bolt capacity.

Chicago Pneumatic *6 East 44th Street, New York 17, N. Y.*

PNEUMATIC TOOLS • ROTARY COMPRESSORS • TRACDRILS • DEMOLITION TOOLS • SINKER DRILLS • PUMPS • IMPACT WRENCHES • WINCHES • VIBRATORS • TAMPERS

Construction Reports

Bids Asked—Low Bidders—Contracts Awarded—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager
J. A. MAHONEY, M. WETZEL, M. E. SCIORRA, D. TARTAGLIA, MARIE MORAVSIK, ELAINE CHOMYAK, ELIZABETH WERRA, ELEANOR QUERET, Reports, J. H. WEBBER, E. R. HUBER, Statistics.

NEW ENGLAND

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

February 9 Connecticut February 13 Vermont

STREETS AND ROADS

February 6, 20, 27, March 6, 13 Vermont

February 9 Connecticut

BUILDINGS—BA

▲ Conn., New Britain—SCHOOL—BA 2/17—School Bldg. Comn., 27 Hillside Place, Pulaski Junior High School, Farmington Ave. $1,800,000. Plans deposit $60. Willard Wilkins, 945 Asylum Ave., Hartford, archt. Henri B. VanZelm & Assocs., 1007 Farmington Ave., West Hartford, engrs. CD 6/26.

▲ Mass., Cambridge—SCHOOL—BA 2/17—City, City Hall, Contr. No. 58-289, Donnelly Field School, East Cambridge. $2,500,000. Plans deposit $100. M. A. Dyer Co., 24 School St., Boston, Mass., archt. CD 8/6/57.

▲ Conn., New London—HOUSING—BA 3/4—Dist. P. Wks., Third Naval Dist., 90 Church St., New York, N. Y., 500 units Capehart Housing, Submarine Base, Rte. 12, Groton. $9,000,000. CD 12/4.

HEAVY CONSTRUCTION—LB & CA

▲ Perini Corp., 73 Montwait Ave., Framingham, Mass., Morrison-Knudsen Co., Inc., 150 East 42nd St., New York, N. Y., Walsh Constr., 711 Third Ave., New York, N. Y., LB $16,883,011 est. $16,400,000, Contr. 284 (1st section) Wachusett-Marlboro Tunnel, Clinton-Marlboro, Boylston, Berlin and Northboro, MASSACHUSETTS. Commonwealth of Mass., Constr. Div., Metropolitan Dist. Comn., 20 Somerset St., Boston, Mass. Bids Jan. 15. CD 12/4.

BUILDINGS—LB & CA

▲ Fusco-Amatruda Co., 59 Amity Rd., New Haven, Conn., Owner Builds. $2,000,000, SHOPPING CENTER, Dixwell Ave., HAMDEN, CONN. CD 4/10/56, under Henry D. Peters, as owner.

▲ Wexler Constr. Co., 118 Needham St., Newton Highlands, Mass., LB $3,078,000 (18 bidders), Albert I. Prince REGIONAL VOCATIONAL and TECHNICAL SCHOOL, Flatbush Ave., HARTFORD, CONN. State P. Wks. Dpt., 165 Capitol Ave., Hartford, Conn. Bids Jan. 21. CD 12/9.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

February 5 New York

STREETS AND ROADS

February 5, 19 New York

▲ New York and New Jersey—BA 2/24—Port of New York Auth., 111 Eighth Ave., New York. Zone 11, Phase 3, Contr. GWB-190.024, approach roadway sys. for lower level expansion of George Washington Bridge between Hoyt Ave. and Hudson River, Boro of Fort Lee, New Jersey, incl. utilities therefor. Plans deposit $100. CD 8/15/57.

▲† Del., Dover—OPERATIONAL FACILITIES—BA 2/25—U. S. Eng., 2635 Abbottsford Rd., Phila., Pa., bldgs., shops and utilities and paving, Dover Air Force Base, 56-109-59-27. $3,500,000. CD 9/9.

▲† Pennsylvania—MISSILE MASTER—Bids Asked—U. S. Eng., 924 New Federal Bldg., Pittsburgh, Missile Master for Pittsburgh Defense area, consisting of 1 story, 190x184 ft., rein.-con. AAOC bldg., 1 story, 90x70 ft., concrete masonry power generator bldg., 1 story, 92 ft. x 83 ft., concrete masonry ADC operations bldg., 1 story, 44 ft. x 33 ft., concrete masonry ADC squadron hdqrs. bldg., 4 arctic radar towers, 125,000 gal. 40 diam., 15 ft. high and 210,000 gal. 74 diam., 8 ft. high steel water storage tanks, incl. bit. paved access roads and parking areas, sidewalks, retaining walls, utility lines, water pumping station, fences, sewage disposal facility, misc. grading, landscaping and site preparation work, all will be bisected by L.R. 02030 between Noblestown Rd. and Oakdale-Thomas Run Rd. in Collier Twp., Allegheny Co., approx. ½ mi. from Oakdale-Thomas Run Rd. Intersection, ENG-36-058-59-20. $2,000,000-$5,000,000.

BUILDINGS—BA

▲ N. Y., Brooklyn—HOSPITAL—BA 2/4—Dpt. P. Wks., Municipal Bldg., New York, Zone 7, general constr., plumbing, heating and ventilating and electrical addn. and modernization Cumberland Hospital; Auburn Pl. and N. Portland Ave., Brooklyn Boro. Extended date. Plans deposit $40. CD 1/9.

▲ Pa., Phila.—DORMITORIES—BA 2/4—University of Pennsylvania, 3025 Walnut St., women's dormitories, $3,000,000. Eero Saarinen & Assoc., 91 W. Long Lake Rd., Bloomfield Hills, Mich., archts. Ammann & Whitney, 111 8th Ave., New York City, N. Y., engrs. CD 9/18.

▲ Md., Jessup—DIAGNOSTIC CENTER—BA 2/5—State Dpt. P. Imprvts., 506 Park Ave., Baltimore, Zone 1, masonry, steel, concrete block diagnostic center, Patuxent Institute. $2,000,000. Plans deposit $50. Lucius R. White, Jr., 1009 N. Calvert St., Baltimore, Zone 2, archt. CD 3/12.

▲ Pa., Chester—WAREHOUSE—BA 2/10—Scott Paper Co., foot of Market St., warehouse addn. to Bldg. 68. $2,500,000. The Ballinger Co., 1625 Race St., Phila., archt.-engr. CD 10/13.

▲ N. J., Scotch Plains—SCHOOL—BA 2/11—Bd. Educ., Twp. of Scotch Plains, Fanwood, high school addn., Westfield Rd. $2,385,000. Micklewright & Mountford, E. Stuyvesant Ave., Trenton, archts. CD 12/10.

▲ N. Y., Ithaca—ANIMAL HUSBANDRY, etc.—BA 2/11—Bureau Contracts, Dpt. P. Wks., 12th Fl., State Office Bldg., Albany, general constr., Spec. No. 14599-C, heating, Spec. No. 14599-H, sanitary, Spec. No. 14599, electric, Spec. No. 14599, animal husbandry, incl. service connections, New York State College of Agriculture at Cornell University. $4,000,000. Plans deposit $50, constr., $30 each for trades. CD 4/17.

HEAVY CONSTRUCTION—LB & CA

▲ Gull Contg. Co., Inc., 33-15 Lawrence St., Flushing, N. Y., CA $1,882,930, constr. Section No. 2 of approach roadway sys. in New York for lower level expansion of George Washington Bridge, Contr. GWB-190.004, NEW YORK and NEW JERSEY, Port of New York Auth., 111 Eighth Ave., New York 11, N. Y. Bids Dec. 16. CD 12/19, under LB.

▲ NEW YORK—Dpt. P. Wks., State Office Bldg., Albany.

Grow Constr. Co., Inc., 313 W. 53rd St., New York 19, N. Y., CA $2,345,159, est. $2,702,000, grading, drainage and structural work 1.68 mi. four-lane divided concrete section Lake Ontario State Parkway and 1.6 mi. access and service roads from Dewey Ave. southeastward to Lake Ave., Rochester City, Monroe Co. Bids Nov. 20. CD 11/21, under LB.

▲ Andrew Catapano & Co., 88-43 76th Ave., Glendale, N. Y., LB $7,156,066 (4 bidders), Contr. No. 2C, Kent Ave. Intercepting Sewer, Franklin St. and Kent Ave. for Newtown Creek Pollution Control Project, Brooklyn Boro, BROOKLYN, N. Y. Dpt. P. Wks., Rm. 2200, Municipal Bldg., New York 7, N. Y. Bids Jan. 16. CD 12/16.

▲ Planet Constr. Corp., 11 West 42nd St., New York, N. Y., CA $3,667,000, superstructure for Hangar No. 17 at New York International Airport, Contr. NYA-970.005, IDLEWILD, N. Y. Port of New York Authority, 111 Eighth Ave., New York 11, N. Y. Bids Dec. 7. CD 12/19, under LB.

▲ Berlanti Constr. Co., Inc., 15 Oakland Ave., Harrison, N. Y., CA $3,818,175, dam, Charlotteburg Reservoir, NEWARK, N. J. City, City Hall, Newark, N. J. Bids Nov. 19, awarded Jan. 16. CD 10/10.

▲† Glasgow, Inc., Willow Grove Ave. and Limekiln Pike, Glenside, Pa., CA $2,598,960, dredging Delaware River, approx. 3,800,000 cu. yds., between Neshaminy Creek and lower end of Burlington Island, Bucks Co., Pa., and Burlington Co., N. J., ENG-36-109-59-30, PENNSYLVANIA and NEW JERSEY. U. S. Eng., 2635 Abbottsford Rd., Phila., Pa. Bids Dec. 18. CD 12/30, under LB.

▲ MARYLAND—State Rds. Comn., 108 E. Lexington St., Baltimore 2, Bids opened 1/20,

LTW Princemont Constr. Co., Rockville, Md., LB $2,074,843 (6 bidders), grading, drainage, surf. 2.752 mi. Rte. 193-Chevy Chase to Kensington, M-517-2-320, Montgomery Co. CD 1/2.

▲ MARYLAND—State Rds. Comn., 108 E. Lexington St., Baltimore 2, Bids opened 1/13,

Wright Contg. Co., Odenton, Md., LB $2,162,590 (7 bidders), grading, drainage, surf. 7.361 mi. Rte. 70 incl. ramps and connecting roads from Tomoloway Creek to near Millstone, W 463 3-15-623, Washington Co. CD 1/2.

▲† Lane Constr. Corp., 965 E. Main, Meriden, Conn., LB $7,675,315 (11 bidders), F.Y. 59 M.C.P. runway-parallel-apron operation, ENG-49-080-59-24(25), ANDREWS AIR FORCE BASE, MD. U. S. Eng., First and Douglas Sts. N.W., Wash. 25, D. C. Bids Jan. 20. CD 1/13.

▲† F. D. Rich, Inc., 550 Summer St., Stamford, Conn., LB $3,309,000, hangar maintenance organization (CRTJ) and hangar maintenance organization (SAM) Serial No. ENG-49-080-59-15 (16), ANDREWS AIR FORCE BASE, MD. U. S. Eng., First and Douglas Sts. N.W., Wash. 25, D. C. Bids Jan. 15. CD 12/22.

▲ Malan Constr. Co., 2 Park Ave., New York, N. Y., CA $3,518,000, 1st phase Potomac River Water Development, Contr. 2094-W-intake structure, raw water pumping station, finished water reservoir and pumping station, Watts Branch, HYATTSVILLE, MD. Washington Suburban Sanitary Comn., Hamilton St., Hyattsville, Md. Bids Jan. 7. CD 1/9, under LB.

▲† W. G. Cornell Co., Inc., 1003 K St. N.W., Wash., D. C., CA $2,624,000, air conditioning and heating U. S. Post Office, North Capital St. and Massachusetts Ave. N.E., WASH., D. C. General Services Admin., Region 3, 7 and D Sts. S.W., Wash., D. C. CD 1/2, under LB.

BUILDINGS—LB & CA

▲ Greater New York Terminal Corp., 210 Varick Ave., Brooklyn, N. Y., Separate Contracts, $8,000,000, OIL TERMINAL, 33 acres, Steinway St. on East River to incl. 300 x 620 ft. covered pier, 10 storage tanks with 60,400,000 gal. capacity, ASTORIA, N. Y. Otto J. & Warren Sambach, 374 Hillside Ave., Williston Park, N. Y., engrs. CD 1/28/55.

▲ Turner Constr. Co., 150 E. 42nd St., New York 17, N. Y., CA $2,500,000, 10 story MULTIPLE DWELLING, 107 Columbia Heights, BROOKLYN, N. Y. Watchtower Bible & Tract Society of New York, Inc., 124 Columbia Heights, Brooklyn, N. Y. Frederick G. Frost, Jr., 144 E. 30th St., New York 16, N. Y., archt. CD 6/13.

▲ Hendrich Constr. Co., Inc., 2065 Harlem Rd., Buffalo, N. Y., CA $3,376,241, 6 story HOSPITAL addn., BUFFALO, N. Y. Deaconess Hospital, 563 Riley St., Buffalo, N. Y. James Meadows & Howard, 250 Delaware Ave., Buffalo, N. Y., archts. Cresap, McCormick & Paget, 342 Madison Ave., New York, N. Y., consult. engrs. Bids Dec. 12. CD 11/21.

▲ Rand Constr. Co., 114 E. 32nd St., New York 16, N. Y., CA $1,330,000, 4 story, steel, concrete OFFICE, New Hempstead Rd. near Main St., NEW CITY, N. Y. Comrs. Rockland Co. County Courthouse, New City, N. Y. I. C. Crausman Assocs., 332 E. 149th St., New York 59, N. Y., archts. CD 9/23.

▲ Denmart Constr. Co., c/o Sylvan Bien, archt., 342 Madison Ave., New York 17, N. Y., Owner Builds, $4,000,000, 19 story APARTMENT, Lexington Ave. from East 71 to East 72nd Sts., NEW YORK, N. Y. CD 7/10, under Buxbaum, as owner.

▲ Fuller-Turner-Walsh-Slattery (George A. Fuller Co., 597 Madison Ave., New York N. Y., Turner Constr. Co., 150 E. 42nd St., New York, N. Y., Walsh Constr. Co., 711 3rd Ave., New York, N. Y., Slattery Contg. Co., Inc., 46-36 54th Rd., Maspeth, N. Y.), CA Est. $60,000,000, OPERA HOUSE, CONCERT

(Continued on page 68)

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $53,000; other public works $88,000; industrial buildings $110,000; other buildings $400,000. Also Foreign projects of $1,000,000 and more in size of Interest to American contractors.

By Regions & Classes of Construction

(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED

New England	Middle West
Middle Atlantic	West of Mississippi
South	Far West

PROPOSED WORK

Water Supply	Public Buildings
Sewers, Waste Disposal	Mass Housing
Bridges	Commercial Buildings
Streets & Roads	Industrial Buildings
Earthwork, Waterways	Unclassified

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.

BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.

SOON LETS CONTRACT: SLC

LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.

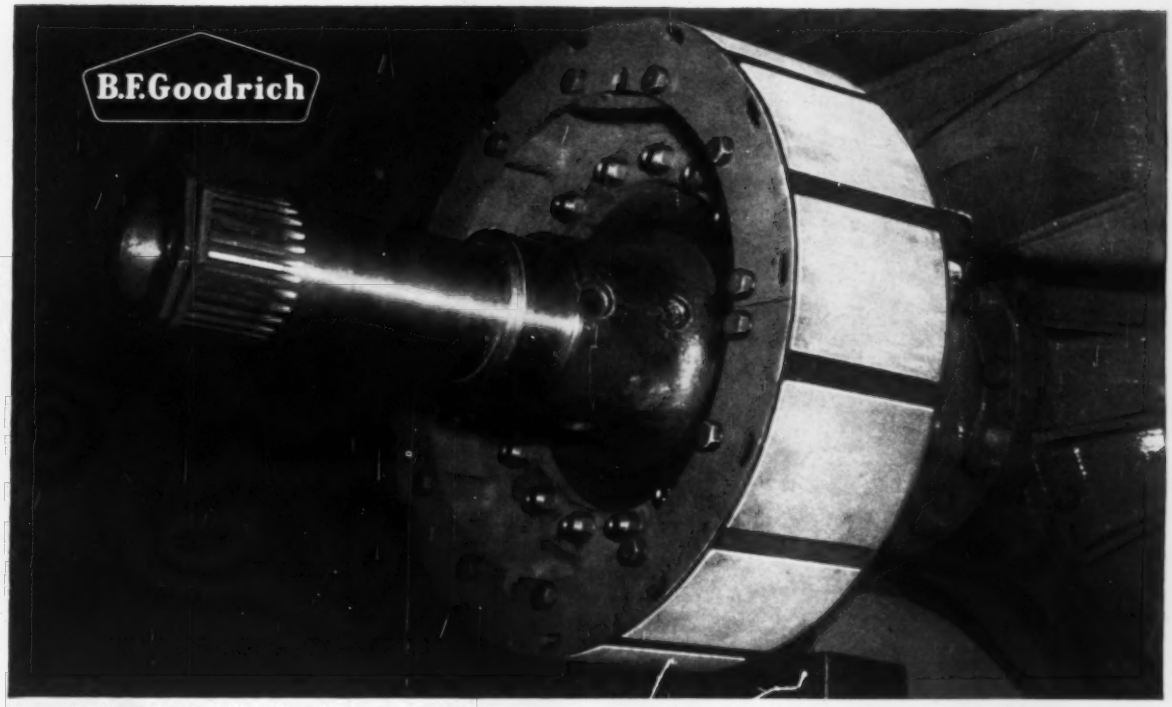
CD dates shown are of Construction Daily Issue in which last previous report was published.

OWNERS, ENGINEERS, ARCHITECTS, CONTRACTORS are invited to report their new jobs for listing in these reports when they meet or exceed the size minimums shown above. Address these news releases to J. A. Mahoney, REPORTS, ENGINEERING NEWS-RECORD, 330 W. 42 St., New York 36, N. Y.

Symbols and Abbreviations Include:

† Federal Government
▲ Project of $1,000,000 or over
ENR Engineering News-Record
CD Construction Daily

For additional reports see Construction Daily.



The *only* off-road brake with *full circle stopping power*

Tests prove the B.F.Goodrich Hi-Torque Brake can stop your heavy equipment faster, safer!

Tractor-Scraper Test

	B. F. Goodrich Hi-Torque	Conventional two-shoe brake
Stopping distance	41' 9"	72'
Speed	14.83 mph	15.17 mph
Load	heaped	heaped

Two identical tractors and scrapers were used for this test. Unit fitted with B. F. Goodrich Brakes stopped almost twice as fast as unit using regular production brakes.

Off-Highway Truck Test

	B. F. Goodrich Hi-Torque	Conventional two-shoe brake
Deceleration rate	18 Ft sec^2	7 Ft sec^2
Speed	25 mph	25 mph
Gross vehicle weight	112,000 lbs.	112,000 lbs.
Wheel condition	sliding	rotating

Popular 24-ton capacity off-highway truck with original production brakes was run over test course. Immediately after fitting the same vehicle with B. F. Goodrich Brakes, the truck made the same run again, stopping almost *two and a half times* as fast.

For more information on how the B. F. Goodrich Hi-Torque Brake can help your equipment operate more safely, more dependably, write *B. F. Goodrich Aviation Products, a division of The B. F. Goodrich Company, Dept. EN-19, Troy, Ohio.*

B.F.Goodrich Hi-Torque brakes

(Continued from page 66)

HALL, Julliard SCHOOL, SCHOOL of the DANCE, LIBRARY and MUSEUM and THEATER for REPERTORY DRAMA, Broadway, Amsterdam and Columbus Aves., West 62nd to West 66th Sts., NEW YORK, N. Y. Lincoln Center for Performing Arts, c/o Harrison & Abramovitz, archts., 360-5th Ave., New York, N. Y. CD 11/20.

▲ **Harris Structural Steel Co.**, 419 4th Ave., New York, N. Y., CA 10,000 ton steel framework fabricated and erected for 38 story OFFICE, 80th Pine St. on block bounded by Pine and Pearl Sts., Maiden Lane and Water St., NEW YORK, N. Y. Samuel Rudin, 415 Madison Ave., New York 17, N. Y. Total cost $25,000,000. CD 7/8/57, under CA;
Slattery Contg. Co., Inc., 46-36 54th Rd., Maspeth, N. Y., CA excavation and foundation work for office (New York, N. Y.);
Underpinning & Foundation Co., 155 E. 44th St., New York, N. Y., CA pile driving for office (New York, N. Y.);
Raisler Corp., 12 W. Broadway, New York, N. Y., CA air-condition, heating and ventilating for office (New York, N. Y.).

▲ **Alfred Kaskel**, 12 E. 49th St., New York 22, N. Y., Owner Builds, $5,000,000, 20 story APARTMENT, 180 East End Ave., NEW YORK, N. Y. Sylvan Bien, 342 Madison Ave., New York 17, N. Y., archt. CD 7/10.

▲ **Dante Leodari**, c/o Daniel Amster, 33 Harrison Ave., Waldwick, N. J., Own Forces, $1,250,000, 44 HOUSES, Brookside Ave., ALLENDALE, N. J.

▲ **Stamato Bros. Constr.**, 284 Main St., Lodi, N. J., Own Forces, $4,000,000, 114 HOUSES, utilities, Gregg Ave., LODI, N. J.

▲ **General Management & Constr. Co.**, 9 Easton Ave., New Brunswick, N. J., Owner Builds, $12,000,000, 20 store SHOPPING CENTER, Leupp Parkway, Franklin Twp., MIDDLEBUSH, N. J. John Graham & Co., 444 5 Ave., New York, N. Y., archts.

▲ **East Stroudsburg, Pa., Area Jt. School Bd.**, East Stroudsburg, Pa., rejected bids Oct. 8, general constr. JUNIOR-SENIOR HIGH SCHOOL, EAST STROUDSBURG, PA. LB $2,119,058. CD 10/30, under LB.

▲ **Westinghouse Electric Corp.**, 3 Gateway Center, Pittsburgh, Pa. CA Est. $10,000,000. 5,000 kw. ATOMIC POWER PLANT, 5,000 kw pressurized water atomic reactor, SAXTON, PA. Pennsylvania Electric Co., (sub. General Public Utilities Co.) 222 Levergood St., Johnstown, Pa. Gilbert Assocs., 525 Lancaster Ave., Reading, Pa., archts.-engrs.

▲ **L. F. Driscoll Co.**, 32 W. Coulter St., Phila., Pa., CA $1,580,000, general constr. MEN'S DORMITORY and WOMEN'S DORMITORY and MUSIC BLDG. for West Chester State Teacher's College, WEST CHESTER, PA. General State Auth., 18th and Herr Sts., Harrisburg, Pa. Bids Dec. 17. CD 12/22, under LB.

▲ **Hill & Kimmel, Inc.**, 8248 Georgia Ave., Silver Spring, Md., CA $1,311,174. Gaithersburg JUNIOR HIGH SCHOOL, Gaithersburg, ROCKVILLE, MD. Montgomery Co. Bd. Educ., Rockville, Md. Bids Jan. 8. CD 1-12.

SOUTH

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
February 6 Kentucky
STREETS AND ROADS
February 6 Kentucky

▲† **Kentucky and Indiana**—BA About 3/10.—U. S. Eng., P. O. Box 59, Louisville 1, Ky., Markland Dam, 12-42 x 100 ft. gates, concrete piers and 800,000 cu. yd. excav., Ohio River, CIVENG-15-029-59-44. $10,000,000. CD 9/5.

BUILDINGS—BA

▲ **La., Baton Rouge**—SCHOOL—BA 2/5. East Baton Rouge Parish School Bd., 805 St. Louis St., Glen Oaks High School, Cedar Grove Dr. near West Merrydale Subdivision, $1,900,000. Plans deposit $100. Miller Smith & Assn., 933 Nicholson Dr., Baton Rouge, La., engrs.

HEAVY CONSTRUCTION—LB & CA

▲ **WEST VIRGINIA**—State Road Comm., Charleston, W. Va.: **Bennie Snyder**, Box 816, White Sulphur Springs, W. Va., CA $1,626,226, grading, draining 2.935 mi. Interstate Rte. 77, Proj. I-77-3 (13) 125, Jackson Co. Bids Dec. 30, awarded Jan. 28;
W. Va.: **Harrison Constr. Co.**, 1101 Western Ave., Pittsburgh, Pa. and **Kuhn Constr. Co.**, Kanawha Valley Bldg., Charleston, W. Va., CA $1,869,774, grading, draining, structures 1.231 mi. Interstate Rte. 77, Proj. I-77-3 (8) 120, Jackson Co. Bids Dec. 30, Awarded Jan. 19. CD 1/5, under LB.

NORTH CAROLINA—State Hy. Dpt., Raleigh. Bids opened 1/20.
N. C.: **A. R. Thompson, Contractor, Inc.**, Rutherfordton, N. C., LB $2,228,957, est. over $500,000, CABC and concrete paving 10.88 mi. from point 1 mi. east of McDowell Co. line to N.C. 18 southeast of Morganton, Proj. 8.18123 1-40.2, 194, 94, Burke Co.; LB $374,015, est. $400,000-$400,000, CABC and BST 4.47 mi. US 221-A from South Carolina State Line north to bridge over Second Broad River, Proj. 8.18823 S-512 (2) Rutherford Co.;
N. C.: **Suber & Co., Inc.**, Whitmire, S. C., LB $1,141,282, est. over $500,000, CABC, BST, structures 6.91 mi. US 421 from point approx. 0.6 mi. northwest of Vilas, northeast Cross Country to Tennessee State line just northeast of Zionville, Proj. 17727 SF-561 (3), Watauga Co.;
N. C.: **William B. Dillard Constr. Co.**, Rutherfordton, N. C., LB $691,336, est. over $500,000, grading 9.13 mi. Interstate 85 from South Carolina State Line northeast to point south of Kings Mountain, Proj. 8.6317 I-85-1 (5) 0. CD 1/9.

▲ **SOUTH CAROLINA**—State Hy. Dpt., Hotel Wade Hampton, Columbia. Bids opened 1/13,
S. C.: **Green Constr. Co.**, Spartanburg, S. C., LB $1,131,324 (12 bidders) mac. base course, bit. surf. 4.900 mi. State Rte. 24, being relocation for Hartwell Reservoir, west of Anderson, S. C. Docket No. 4.483, State Rte. 24, Anderson Co.;
S. C.: **Brown Paving Co.**, Lexington, N. C., LB $283,603 (4 bidders) b. conc., etc., 5.17 mi. US Rte. 378, 52, S. C. Dockets Nos. 21.385-1, 21.432 and 45.1024, F.A. Projs. Nos. F-FG-2601 (3), F-227 (2) and F-472 (8), Florence and Williamsburg Counties;
S. C.: **Sloan Constr. Co., Inc.**, Peoples National Bank Bldg., Greenville, S. C., LB $295,488 (2 bidders) bit. surf., etc., 10.44 mi. Rd. S-21, Rte. 417, Rds. S-153, S-249, S-250, S-251, S-252, S-253, S-660, S-102, S-247, S-248, S-30 and S-245, S. C. Dockets Nos. 23.417-1, 23.439 and 23.440, F.A. Proj. SG-1048 (1), Greenville Co.;
S. C.: **Boyle Constr. Co.**, 30 E. Liberty St., Sumter, S. C., LB $1,072,203 (10 bidders) drainage, base, bit. surf. 8.259 mi. Int. Rte. 26 from Calhoun Co. line to Rte. 33, S. C. Docket No. 38.488, F.A. Proj. I-26-3 (11), Orangeburg Co.;
S. C.: **Fox Constr. Co., Inc.**, Lexington, S. C. and **Robert E. Lee & Co., Inc.**, Manning, S. C., LB $1,485,952 (6 bidders) base and bit. surf. 10.511 mi. Int. Rte. 26 from Rte. 33 to Rd. S-45, S. C. Docket No. 38.489, F.A. Proj. I-26-3 (14), Orangeburg Co. CD 1/5.

▲† **P. G. Bell & Co., Inc.**, Box 13196, Houston, Tex., CA $1,507,908, fire station, dormitories and office quarters, Patrick Air Force Base, ENG-08-123-59-31, COCOA, FLA. U. S. Eng., Box 4970, Jacksonville 1, Fla. Bids Dec. 31. CD 1/9, under LB.

▲† **James J. Craggs Constr. Co.**, Box 22, Gainesville, Fla., CA $1,998,669, operational utilities, McCoy Air Force Base, ENG-08-123-59-18, ORLANDO, FLA. U. S. Eng., Box 4970, Jacksonville 1, Fla. Bids Dec. 23. CD 1/13, under LB.

▲† **Southern Roadbuilders, Inc.**, P. O. Box 1129, Augusta, Ga., CA $1,500,308, apron operational and related utilities, MacDill Air Force Base, TAMPA, FLA. U. S. Eng., P. O. Box 4970, Jacksonville 1, Fla. Bids Jan. 13. CD 1/19, under LB.

▲ **ALABAMA**—State Hy. Dpt., Montgomery,
George A. Dozier, 4144 Wares Fy Rd., Montgomery, Ala., CA $2,732,035, grading, draining, paving 6.689 mi. from Chilton Co. Line NW Dargin on Interstate Rte. 65, Shelby Co. Bids Dec. 19. CD 12/31, under LB.

BUILDINGS—LB & CA

▲† **Atlantic Contractors, Inc.**, 13006 Saticoy St., North Hollywood, Calif., CA $13,000,000, 800 Capehart HOUSING units, Marine Corps Base, NBy(CH) 7757, Spec. 7757-57, CAMP LE JEUNE, N. C. Dist. P. Wks. Office, 5th Naval Dist., U. S. Naval Base, Norfolk 11, Va. CD 12/11, under LB.

▲ **Westinghouse Electric Corp.**, 3 Gateway Center, Pittsburgh, Pa., CA Est. $22,000,000. DEMONSTRATION NUCLEAR POWER PLANT, near Parr, SOUTH CAROLINA. Carolinas-Virginia Nuclear Power Assocs., Inc.: Virginia Elec. & Power Co., 7th and Franklin Sts., Richmond, Va.; Duke Power Co., 430 S. Church St., Charlotte, N. C.; South Carolina Electric & Gas Co., 1309 Hampton St., Columbia, S. C. and Carolina Power & Light Co., 419 Fayetteville, Raleigh, N. C.). Stone & Webster Eng. Co., 49 Federal St., Boston, Mass., archt.-engr. CD 11/18/57.

▲ **George A. Fuller Co.**, 1 Peachtree St. Bldg., Atlanta, Ga., CA $1,477,416. JUVENILE COURT and DETENTION HOME for Fulton Co., ATLANTA, GA. Fulton Co. Bd. Comrs., Rds. & Revenues Courthouse, Atlanta, Ga. Bids Dec. 17. CD 12/23, under LB.

▲ **John B. Orr, Inc.**, 485 NW 54 St., Miami, Fla., CA $1,500,000 SHOPPING CENTER N. Federal Hy. and Sunrise Blvd., FORT LAUDERDALE, FLA. Lauderdale Shopping Center, c/o contractor.

▲† **Southern Constr. Co.**, Rossville, Ga., CA $1,349,000, 2 story no bsmt. brick MAINTENANCE BOARD BLDG. addn., ENG-15-029-59-1, FORT KNOX, KY. U. S. Eng., P. O. Box 59, Louisville 1, Ky. Bids Dec. 11. CD 12/16, under LB.

▲ **Robert Simmons Co.**, 840 Barrett Ave., Louisville 4, Ky., LB $2,678,000 (16 bidders), 3 story, 146,000 sq. ft. granite, stone, structural steel, superstructure HEALTH SERVICE, FRANKFORT, KY. Commonwealth of Ky., Div. Purchases, Frankfort, Ky. Meriwether, Marye & Assoc., 248 E. Short St., Lexington, Ky., archts. Southern Engineers, 322 W. Jefferson, Louisville 2, Ky., engrs. Bids Jan. 20. CD 4-1e.

▲† **J. A. Jones Constr. Co.**, 209 W. 4th St., Charlotte, N. C., LB $6,147,000, RESEARCH BUILDING, 4500 in X-10 area of Oak Ridge area, Roane Co., Inv. 401-59-1A, OAK RIDGE, TENN. Atomic Energy Comm., Area Constr. Div., Bld. 9720-b, Oak Ridge, Tenn. Bids Jan. 15. CD 12-2.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
STREETS AND ROADS
February 10 Wisconsin

▲† **O., Dayton**—S. A. C. COMPOSITE, etc.—BA 2/24—U. S. Eng., P. O. Box 59, Louisville 1, Ky., 46,750 sq. ft. S.A.C. composite-industrial bldg., 22,650 sq. ft. operations bldgs., 1,000 sq. ft. telephone bldg., Wright Patterson Air Force Base, ENG-15-029-59-41. $1,000,000-$2,000,000. CD 9/5.

BUILDINGS—BA

▲ **Ind., Bloomington**—HALL OF MUSIC—BA 2/4—Indiana University, 285 x 337 ft., structural steel frame Hall of Music Annex No. 2, A.M. Strauss & Assoc., Inc., Strauss Bldg., Fort Wayne, archt. CD 10/2.

▲† **Mich., Oscoda**—HOUSING—BA 2/5—Base Procurement Office, Wurtsmith Air Force Base, 618 unit Capehart Housing, Wurtsmith Air Force Base. $10,000,000. CD 12/1.

▲ **Ill., Chicago**—FIREMEN'S ACADEMY—BA 2/11—Dpt. Purchases, City Hall, Zone 2, firemen's academy, $1,750,000. Paul Gerhardt, Jr., City Hall, Zone 2, archt. Lobl Schlossman & Bennett, 333 N. Michigan Ave., archts. CD 8/14.

▲ **Wis., Wales**—ACADEMIC UNIT, etc.—BA 2/17—State Dpt. Public Welfare, Madison, Academic Unit for Boys School, Weiler & Strang & Assocs., 810 University Bay Dr., Madison, archts-engrs.; 9 cottages for Boys School, Phillips & Elbe, 427 W. National Ave., Milwaukee, archts. Plans deposit $50 each. CD 5/15/56, under Wis., Plymouth.

▲ **Wis., Milwaukee**—SCHOOL—BA 2/19—Bd. School Directors, 1111 N. 10 St., Zone 3, Robert Fulton Junior High School, $2,170,000. Plans deposit $125, Fritz von Grossmann, 5455 W. Burleigh St., archt. CD 5/15.

▲† **Mich., Kinross**—HOUSING—BA 2/26—Base Procurement Office, Kinross Air Force Base, 475 unit Capehart housing, Kinross Air Force Base. $7,000,000. CD 9/29.

▲ **Ill., Chicago**—BANK—Bids Asked—Mercantile National Bank, 541 W. Jackson Blvd., 4 story bank 11 story office, corner Clinton and Jackson Blvd. $6,000,000. Friedman, Alschuler & Sincere, 223 W. Jackson Blvd., archts. CD 1/13.

HEAVY CONSTRUCTION—LB & CA

▲ **W. B. Gibson Co.**, 200 Chestnut Ave. N.E., Warren, O., LB $3,194,216, est. $3,352,000 (6 bidders), pumping station, force main and sewage treatment plant, WARREN, O. City, City Hall, Warren, O. Havens & Emerson, 640 Leader Bldg., Cleveland 14, O., engrs. Bids Jan. 15. CD 12/9, under LB.

▲ **E. A. Harrold**, 34274 Stellwagon St., Wayne, Mich., CA $2,676,434, 75 mi. sewers, Div. I and II, INDIANAPOLIS, IND. Ben Davis Conservancy Dist., 4810 W. Washington St., Indianapolis, Ind. Bids Dec. 1. CD 12/29, under LB.

▲ **ILLINOIS**—Dpt. P. Wks. & Bldg., Div. Hys., Centennial Bldg., Springfield. Bids opened 1/14.
Ill.—**Orr Constr. Co.**, 27 E. 19 Pl., Chicago Heights, Ill., LB $1,838,405 (9 bidders) 4 grade separation structures, relocate Archer Ave. and LaGrange Rd. in Willow Springs, Cook Co.;
Ill.: **McCann Co., Inc.**, P.O. Box 201, Springfield, Ill., LB $218,667 (3 bidders) widen 3 bridges over Kiser Creek on US 36 southeast of Barry, Pike Co.;
Ill.—**Thos. McQueen Co.**, 1313 S. Circle Ave., Forest Park, Ill., LB $215,350 (12 bidders) 2 parallel grade separations structures Lake St. over Congress St. Expressway, DuPage and Cook Counties. CD 1/8.

▲ **WISCONSIN**—State Hy. Comm., State Office Bldg., Madison. Bids opened 1/15.
Wis.: **N. M. Isabella, Inc.**, 714 Market Place, Madison, Wis., LB $674,902 (4 bidders), base and concrete pavement 3.799 mi. Hudson-Eau Claire Rd. (Menomonie-Elk Creek Sect.), and west Menomonie relocation Interstate Hy. 94 and State Trunk Hy. 35, Contr. 1, Proj. I-94-1(13)141 and Contr. 4, Proj. T 067-7, Dunn Co.; LB $875,082 (5 bidders), base and concrete pavement 4.341 mi. Hudson-Eau Claire Rd. (Menomonie-Elk Creek Sect.), Interstate Hy. 94, Contr. 4, Proj. I-94-1(13)141, Dunn Co.;
Wis.: **Baumgardt Constr. Co.**, Dodgeville, Wis., LB $596,981 (12 bidders), grade, subbase and base course 5.562 mi. Dubuque-Dickeyville Rd., U. S. Hys. 61 and 151, Contr. 1, Proj. F 012-1(36), Grant Co.
Wis.—**Lee H. Parker**, 2015 N. Richmond St., Appleton, Wis., LB $1,506,522 (7 bidders), base and concrete pavement 8.14 mi. Hudson-Eau Claire (Menomonie-Elk Creek Sect.) Rd. and the West Menomonie relocation, Interstate Hy. 94 and S. T. Hy. 35, Contrs. 1 and 4 (Combination), Proj. I-94-1(13)141 and Contr. 4, Proj. T 068-7, Dunn Co. CD 12/31.

BUILDINGS—LB & CA

▲ **The Bedford Co.**, 4764 Lee Rd., Cleveland 28, O., Own Forces, $7,000,000, 400 HOMES, Bedford Ridge Estates, BEDFORD HEIGHTS, O.; E. Keith Hagg, 2765 Hudson Dr., Cuyahoga Falls, O., archt. CD 8/20, under The Dover Co., as owner.

▲ **Alvin Homes**, 17919 Holland Rd., Brook Park, O., Own Forces, $8,000,000, 500 HOMES, off Smith Rd. south of Hummel Rd., BROOK PARK, O. Nathan Bernstein, 1991 Lee Rd., Cleveland 12, O., archt.

▲ **Alvin Homes**, 17919 Hummel Rd., Brook Park, O., Own Forces, $8,000,000, 500 HOMES, west of Homeway Ave. to Bernice Ave., Own Forces, $8,000,000, 500 HOMES, off Fairway Ave. and Puritas Ave., near W. 1844 St., CLEVELAND, O. Nathan Bernstein, 1991 Lee Rd., Cleveland 12, O., archt.

▲ **B. W. Constr. Co.**, 6529 S. State St., Chicago, Ill., CA $3,000,000, HOSPITAL addn., EAST CHICAGO, IND., St. Catherine's Hospital, 4312 First St., East Chicago, Ind. Bids Dec. 16, awarded Jan. 14. CD 11-25.

(Continued on page 70)

■ Cut-In Sleeve and Valve installed in main

MUELLER®
cut-in sleeves and valves

Install needed control valves without breaking pipe joints!

■ New control valves can be added and old valves replaced quickly with Mueller Cut-In Sleeves and Valves. Only a minimum of excavation is necessary. You don't have to uncover several lengths of pipe so that pipe joints may be broken. You can install the valve right where you want it — anywhere on the pipe length.

Special mechanical joints on both sleeve and valve permit one Cut-In Sleeve and Valve of a nominal size to be used on any cast iron pipe regularly found in water distribution systems by using the proper end gaskets.

Mueller Cut-In Valves have the same quality features as the Mueller AWWA Gate Valve — including the 4-point-contact wedging mechanism. "O" ring stem seals or conventional packing are optional. Indicator post type cut-in valves are also available. Sizes 4", 6", 8", 10" and 12".

See your Mueller Representative or write direct for full details.

MUELLER CO.

DECATUR, ILL.

Factories at Decatur, Chattanooga, Los Angeles
In Canada: Mueller, Limited, Sarnia, Ontario

MUELLER CO. since 1857 SERVING the Water and Gas Industries QUALITY

(Continued from page 68)

▲ **Dell Corp.**, 9003 Waukegan St., Morton Grove, Ill. CA $1,064,000, heating and pipe-fitting contr., EXPOSITION HALL, Lakefront, CHICAGO, ILL. Metropolitan Fair & Exposition Authority, 208 S. LaSalle St., Chicago, Ill. Grand total $8,532,470. CD 12/16, under EB.

American Bridge Div., U. S. Steel Corp., 208 S. LaSalle St., Chicago, Ill., CA $2,465,552 structural steel contr., EXPOSITION HALL (Chicago, Ill.).

Anderson & Litwack Co., 530 Hyde Park, Hillside, Ill., CA $1,353,007, ventilation contr., EXPOSITION HALL (Chicago, Ill.).

Great Lakes Plumbing & Heating Co., 4521 Diversey St., Chicago, Ill., CA $723,239, plumbing, outside water and sewer work contr., EXPOSITION HALL (Chicago, Ill.).

Fischback, Moore & Morrissey, Inc., 173 W. Madison St., Chicago, Ill., CA $2,926,682, electrical contr., EXPOSITION HALL (Chicago, Ill.).

▲ **Turner Constr. Co.**, 105 W. Adams St., Chicago, Ill., CA $3,000,000, 140 unit APARTMENT, REFRIGERATOR BLDG., concrete, bit. paving, sidewalks, curbs, gutters, skating rink, tennis courts, Lake Meadow vicinity, 35 St. and S. Parkway CA $3,000,000, two 13 story, steel concrete APARTMENTS, Lake Meadows area, CHICAGO, ILL. New York Life Insurance Co., 51 Madison St., New York, N. Y. Skidmore, Owings & Merrill, 100 W. Monroe St., Chicago, Ill., archts. Awarded Jan. 19. CD 7/30/48.

▲† **Ciell & Anderson, Inc.**, 5425 N. Kedzie Ave., Chicago, Ill., CA $1,372,590, 2 BARRACKS, site development, GREAT LAKES, ILL. Dist. P. Wks. Office, Ninth Naval Dist. Bldg. 1-A, Great Lakes, Ill. Awarded Jan. 16. CD 1/14, under LB.

WEST OF MISSISSIPPI

HEAVY CONSTRUCTION—BA

STREET HIGHWAY LETTINGS
BRIDGES
February 5, 6 Kansas February 6 North Dakota
February 13 Texas
STREETS AND ROADS
February 5, 6 Kansas February 6 North Dakota
February 13, 14 Texas

▲† **Mo., Knob Noster**—OPERATIONAL ALERT FACILITIES, BA On Or About 2-18. U. S. Eng., 1800 Federal Office Bldg., Kansas City, Mo. operational alert facilities, Whiteman Air Force Base, ENG-24-029-59-45. CD 1-8, under LB.

▲† **Wyo., Cheyenne**—LAUNCH FACILITIES AND UTILITIES, BA On Or About 2-26. U. S. Eng., 1709 Jackson St., Omaha 2, Neb. (a) nine 101x134 ft. reinforcement launch and service bldgs. (b) three 2 story, reinforcement launch operations bldgs. (c) three 56x72 ft., 2½ frame power and pump houses (d) 4 well pumps and pump houses (e) utilities, including water lines, sewage disposal sys., etc. (f) installing 9 Govt.-provided generators, Squadron II, F. E. Warren Air Force Base, Inv. No. ENG-25-066-59-40. CD 1-6.

▲† **South Dakota**, BA On Or About 3-4. U. S. Eng., 1709 Jackson St., Omaha 2, Neb., constr. earthwork Stage VII, consisting of Sched. A, right bank excavation, left bank excavation, rolled embankment, uncompacted fill, berms, levee embankment, fill in right bank drainage conduit and extension, settlement gages and piezometer tubes; Sched. B, riprap (furnish, place), spoil, filter blanket; Sched. C, the entire work. Oahe Reservoir, Proj. near Pierre. ENG-25-066-59-66. CD 9-23.

▲† **Colo., Denver**—AIR BASE FACILITIES, BA On Or About 1-19. U. S. Eng., Denver Fed. Center, WS-107-A-2 technical facilities Complex 1A, 1B and 1C, and 1 remote control centers, 3 remote portal sites, 9 missile silos, tunnels and gate house, Lowry Air Force Base. ENG-25-066-59-73.

BUILDINGS—BA

▲ **Minn., Bemidji**—SCHOOL, BA 2-17. Bd. Educ., Bemidji Junior High School. $1,650,000. Foss & Co., 28 N. Third St., Moorhead, archts. CD 6-11.

▲ **Minn., Minneapolis**—ARCHITECTURE AND ENGINEERING, BA 2-26. Regents of the University of Minnesota, 304 Administration Bldg., 2 story, bunker, architecture and engineering overflow bldg. on Minneapolis Campus. $1,600,000. Extended date, Thorshov & Cerny, Inc., 400 Metropolitan Bldg., archt. CD 12-29.

▲ **Minn., Northfield**—STUDENT CENTER, etc., BA 1-5. Thorshov & Cerny, Inc., archt., 400 Metropolitan Bldg., Minneapolis. student center, $1,400,000. Plans deposit $100, administration bldg., $350,000, for St. Olaf College, Northfield. Sivek, Mathre & Assoc., Northfield, archts. CD 10-29-57 and 1-14.

▲ **N. D., Minot**—HOSPITAL, BA 2-19. St. Joseph's Hospital, Minot, hospital addn. $2,300,000. Hills, Gilbertson & Hayes, 600 Wayzata Blvd., Minneapolis, Minn., archts. CD 11-19-57.

HEAVY CONSTRUCTION—LB & CA

▲ **IOWA**, State Hy. Comm., Ames. Bids opened 1-13. **Iowa, R. B. Burch, Inc.**, 824 27 Ave. S.W., Cedar Rapids, Iowa, LB $603,205, grading 3.962 mi. I-16-80-4 (2) 142 (I-16-01-4)2), Polk Co.; LB $382,888, grading 7.284 mi., I-80-5 (2) 146 (1-01-5 (2)), Polk Co.;

Iowa, Woodrich Constr. Co., 201 18 Ave. South, Hopkins, Minn., LB $2,228,258, c. conc. 7.516 mi., I-29-6 (10) 136, Woodbury Co.;

Iowa, Mickle & Ross Constr. Co., Newton, Iowa, LB $540,413, grading 2.816 mi., I-80-5 (2) 146 (I-01-5 (2)), Jasper Co. CD 12-31.

▲† **Baldwin-Lima-Hamilton Co.**, Philadelphia National Bank Bldg., Phila., Pa., CA $1,757,210, two hydraulic turbines, Greer's Ferry Dam, ENG-03-050-1, ARKANSAS. U. S. Eng., P.O. Box 867, Little Rock, Ark. CD 9/8, under LB.

▲† **U. S. Eng.**, 1709 Jackson St., Omaha, Zone 2, Neb., cancelled bis to have been opened Jan. 14, runway and apron paving, Lincoln Air Force Base, ENG-25-066-59-60, LINCOLN, NEB. $1,250,000-$1,500,000. CD 12/10.

▲ **TEXAS**—State Hy. Comn., Austin. Bids opened 1/16, **Tex.—Strain Bros., Inc.**, Box 1631, San Angelo, Tex., LB $409,513, flexible base, b. conc., 2.243 mi., Hy. U. S. 277, Proj. F 379 (4) Sutton Co.; LB $521,674, flexible base, asphalt surface 7.863 mi., Proj. F 382 (9) & S 2164 (1), Palo Pinto Co.;

Tex.—Vicking Constr. Co., Inc., 2138 Welch St., Houston, Tex., LB $1,550,096, imprv. 1.794 mi., Hy. I 610, Proj. I 610-7 (21), 809, Harris Co.;

Tex.—E. E. Hood & Sons and Ward Constr., Box 12097, San Antonio, Tex., LB $456,771, flexible base, b. conc., 2.617 mi., Hy. St. 44 and 359, Proj. F 429 (24) U 429 (25), Jim Wells Co.;

Tex.—R. W. McKinney, Nacogdoches, Tex., LB $643,532, widen, grade, etc., 25.367 mi., Hy. U. S. 77, St. 320, Proj. F 331 (8) & S 22 (2), Falls and Bell Counties;

Tex.—James C. Kerr, Lubbock, Tex., LB $425,924, base, asphalt surf., 4.029 mi., Hy. U. S. 62, Proj. U 1104 (9), Lubbock Co.;

Tex.—Gilvin-Terrell, Inc., Box 2268, Amarillo, Tex., LB $449,104, grade, pave, etc., 1.433 mi., Hy. U. S. 87, & St. 86, Proj. F 546 (25) (26) & S 7 (8), Swisher Co., all foregoing. CD 12/24.

Tex.—Trotti & Thomson, Inc., Box 70, Beaumont, Tex., LB $639,312, concrete paving 0.647 mi., Hy. IH 10, Proj. I 56 (08), Jefferson Co., CD 12/31.

▲ **Panama, Inc.**, Tennessee Bldg., Houston, Tex., CA Est. $9,520,000, 238 mi. 30 in. natural gas pipeline from King Ranch, Kingsville to point outside Houston City limits, KINGSVILLE, TEX., Humble Oil & Refining Co., 1216 Main St., Houston, Tex. Bids Dec. 15. CD-10-21, under Industrial Buildings.

▲† **Mason & Hangar—Silas Mason Co., Inc.**, 500 S. Ave., New York, N. Y., CA Est. $50,000,000, underground launching facility for Titan ICBM at Lowry Field, DENVER, COLO. Dpt. Air Force, Lowry Air Force Base, Denver, Colo., Leo A. Daly Co., 633 Insurance Bldg., Omaha, Neb., archt.-engr., Daniel, Mann, Johnson & Mendenhall, 3325 Wilshire Blvd., Los Angeles, Calif., archts.-engrs.

BUILDINGS—LB & CA

▲ **A. Herman**, 1428 North Washington Ave., Minneapolis, Minn., CA $1,700,000, general contract 100-unit APARTMENT, West Calhoun Blvd. between Knox and Lagoon Aves., MINNEAPOLIS, MINN. Calhoun Terrace Co., c/o Liebenberg & Kaplan, archts., 51 South 13th St., Minneapolis, Minn.

▲ **Delta Engineering Corp.**, Box 13256, Houston, Tex., CA $3,000,000, Hamilton Products, EXTRACTION PLANT addn., ethane recovery facilities, MAGNOLIA, ARK., Arkansas Louisiana Chemical Corp., 300 W. Capitol St., Little Rock, Ark. Awarded Jan. 17.

▲ **Hal C. Dyer**, Lone Star Gas Bldg., Dallas, Tex., CA Approx. $2,000,000, 7 story MEDICAL CENTER, Ursulines and Washington Sts., DALLAS, TEX. Hal Anderson, 5346 Meadow Lane, or c/o Jacob Anderson, archt., 610 Thomas Bldg., Dallas, Tex. CD 12-3.

S. D. Gorman, c/o owner, CA $1,265,000, 144 unit APARTMENT, Small St., GRAND PRAIRIE, TEX., Dave Hicks & Co., Inc., 2444 W. Main St., Dallas, Tex. CD 1-22.

▲ **Mead & Mount Constr. Co.**, Denver Club Bldg., Denver, Colo., LB $2,000,000, RESEARCH LABORATORY, LITTLETON, COLO. Martin Co., 1250 South Highway, Littleton, Colo. Bids Jan. 16., CD 1-13.

FAR WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
STREETS AND ROADS
February 18, 19 California

▲ **WASHINGTON**, BA After 2-10. Washington Toll Bridge Auth., Olympia,
floating section, bridge across Lake Washington, east of Seattle, Total est. $22,000,000. CD 12-8-55.

▲ **Calif., Bakersfield**, BA 2-17. Greater Bakersfield Separation of Grade Dist., 301 Mariner Bldg., separation over Belle Ave., $2,720,286., Kern Engineering Corp., 301 Mariner Bldg., engrs. CD 6-13.

▲ **Wash., Seattle**, BA 2-18. Bd. P. Wks. County-City Bldg., Zone 4, 24 mi. 54- to 60-in. prestressed concrete or steel water supply line from Tolt River regulating basin to Lake Forest Park reservoir, in three sections, $10,500,000. Plans deposit $50. R. W. Morse, city engr. CD 9-23-55.

BUILDINGS—BA

▲ **Calif., Santa Monica**—COLLEGE BUILDINGS, BA 2-9. Santa Monica Unif. School Dist., 1723 4th St., Santa Monica City College. $2,500,000. CD 6-12-57.

▲† **Calif., Beale Air Force Base**—HOUSING—BA 2-10—Base Procurement Office, Beale Air Force Base, Marysville, 400 units Capehart Housing, No. 2 Increment. $6,000,000. CD 9-29.

▲ **Utah, Ogden**—SCHOOL—BA 2-26—Weber County School Bd., 1122 Washington Blvd., Senior High School in Washington Terrace area. $1,750,000. Keith L. Wilcox & Assocs., 410 Kiesel Bldg., Ogden, archts. CD 11-18-57.

HEAVY CONSTRUCTION—LB & CA

▲ **UTAH**, State Rd. Comn., State Capitol, Salt Lake City,

Gibbons & Reed Co., 825 W. 9th St. N., Salt Lake City, Utah, CA $1,642,477, grade, drain roadway 2.424 mi., incl. 43,725 sq. ft. furnishing, installing sheet piling, FA Proj. I 15-1 (10) 306, 1st. Contr., Salt Lake Co. Bids Dec. 9. CD 12-12, under LB.

▲ **Christiansen Bros.**, 209 W. 13th S., Salt Lake City, Utah, CA $3,530,174, administration bldg., for Municipal Airport, SALT LAKE CITY, UTAH. Salt Lake City Corp., City-County Bldg., Salt Lake City, Utah. Bids Aug. 14. CD 8-22, under LB.

▲ **NEVADA**, State Dpt. Hys., State Hy. Bldg., Carson City,

Nev.—Wells Cargo, Inc., P. O. Box 430, Las Vegas, Nev., CA $364,296 (5 bidders) portion primary and secondary hy. sys. 4.704 mi. Hy. U. S. 91 between Flamingo Rd. and Oakey Blvd. in Las Vegas; on Fulcher Rd. (FAS 550) between jct. with U. S. 91 and jct. with Paradise Rd. (FAS Rte. 534) and on Paradise Rd. (FAS Rte. 534) between 1.5 mi. south city limits of Las Vegas, Rte. Section 005-1, FAS Rtes. 550 and 534, Control sections CL-03, CL 54, CL-39, Proj. Nos. F-005-1 (13) S-550 (1) & S-534 (3) State Hy. Contr. 1052, Clark Co.;

Nev.—Whiting Bros. Constr. Co., Inc., Industrial Constr. Co., General Contractors Co., 1064-2 W. Wyoming St., Las Vegas, Nev., CA $1,946,949, joint venture (6 bidders) portion State Hy. Sys. Int. Hy. 15 between 3.7 mi. N.E. and 13.3 mi. N.E. of Jean, Rte. Section 015-1, Control Section CL-82, Proj. I-IG-015 (11) 16, State Hy. Contr. No. 1051, Clark Co.;

Nev.—Willis Bros., Winnemucca, Nev., CA $335,724 (5 bidders), portion State Hy. Sys. between Oregon-Nevada State Line (near Washoe Co. Line) and Jct. with S.R. 8A, 33 mi. west of Denio, FAS Rte. 616, Control Section HU-28, Proj. S-616 (2), State Hy. Contr. 1050, Humboldt Co. Bids Jan. 13. Grand total $2,646,969. CD 12-31.

▲ **WASHINGTON**, State Hy. Comm., Chn. Dpt. Hys., Olympia. Bids opened 1-20.

Allied Structural Steel Co., 20 N. Wacker Dr., Chicago, Ill., LB $6,943,568 (6 bidders) steel superstructure of Seattle Freeway Bridge across Lake Washington Ship Canal, FAP No. BI-5-3(9)169, King Co. Bids Jan. 20. CD 12-23.

▲ **The Anderson Constr. Co., Inc.**, Central Bldg., Seattle, Wash., and **Wilder Constr. Co.**, 1840 State St., Bellingham, Wash., (joint venture), LB $5,759,821, est. $5,777,982 (4 bidders), water storage dam on South Fork Tolt River, SEATTLE, WASH. Bd. P. Wks., Seattle, Wash. Bids Jan. 14. CD 12-12.

▲† **Connolly Pacific Co. & T. E. Connolly**, 1925 Water St., Long Beach, Calif., CA $3,117,250, Ventura Co. Harbor Breakwater and jetties near Port Hueneme, ENG-04-353-59-18, CALIFORNIA. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids Dec. 23. Awarded Dec. 30. CD 12-30, under LB.

▲† **Fredericksen & Kassler**, 212 13th St., Sacramento, Calif., CA $1,487,211, Upper Rio Hondo Channel Improv., El Monte, ENG-04-353-59-20, CALIFORNIA. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids Jan. 14. Awarded Jan. 16. CD 1-19, under LB.

▲† **Mattich Bros.**, Box 190, Colton, Calif., CA $1,546,249, airfield facilities, alert apron, readiness crew bldg. and utilities, ENG-04-353-59-38, MARCH AIR FORCE BASE, CALIF. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids Jan. 15. CD 1-19, under LB.

▲ **Vido Artukovich & Sons**, 11155 Rush St., El Monte, Calif., CA $2,344,558, New Hope-Placentia Trunk Sewer, Contr. 2-1, SANTA ANA, CALIF. Orange County Sanitation Dist. No. 2, 1104 W. 8th St., Santa Ana, Calif. Bids Jan. 7. CD 1-12, under LB.

BUILDINGS—LB & CA

▲ **State Dpt. General Admin.**, General Admin. Bldg., Olympia, Wash., rejected bids Jan. 2, 5 story, bsmt., 122,000 sq. ft., reinforced addn. to GENERAL ADMIN. BLDG., OLYMPIA, WASH. $2,000,000. CD 12-8.

▲ **Intercommunity Hospital**, 275 W. College Ave., Covina, Calif., rejected bids Dec. 24, Stage 2, 2 story, bsmt., reinforced HOSPITAL addn., COVINA, CALIF. LB $1,476,000. CD 12-30, under LB.

▲ **Treate Constr. Co.**, 2001 Kettner Blvd., San Diego, Calif., CA $1,699,500, 3 story, 134-bed HOSPITAL addn., GROSSMONT, CALIF. Grossmont Hospital Dist., N. La Mesa, Grossmont, Calif. Bids Dec. 17, awarded Jan. 14. CD 12-23, under LB.

▲ **Dass Constr. Co.**, 5837 El Cajon Blvd., San Diego, Calif., Owner Builds, $1,885,773, 128 DWELLINGS, El Paso St., Alida Dr., Michelle Dr., Kimberly St., Rainey St., LA MESA, CALIF.

▲ **Crown Constr. Co.**, 5059 W. Pico Blvd., Los Angeles, Calif., CA $2,423,781, constr. Marina del Rey JUNIOR HIGH SCHOOL, LOS ANGELES, CALIF. Bd. Educ., 1425 S. San Pedro St., Los Angeles, Calif. Bids Dec. 19, awarded Jan. 12. CD 12-30, under LB.

▲† **Robert E. McKee, Inc.**, 4701 San Fernando, West Los Angeles, Calif., LB $6,530,700, Item 1 (5 bidders)

BUILDINGS 1e2, 1e3 and 1e4 alterations and addn. at Veterans Admin. Center, Wadsworth Hospital, LOS ANGELES, CALIF.; Veterans Admin., Munitions Bldg., Wash., D. C.; Charles Luckman & Assoc., 9220 Sunset Blvd., Los Angeles 1e, Calif., archts. Bids Jan. 20, CD 11-20.

▲ Twaits-Wittenberg Co. & Morrison-Knudsen Co., Inc., 507 S. Bixel St., Los Angeles, Calif., LB $11,492,000 (5 bidders), multi-story HALL OF RECORDS BLDG. in Los Angeles Civic Center, LOS ANGELES, CALIF.; Clerk, Los Angeles Co., for County Bd. Retirement, Los Angeles Co. Hall of Records, Los Angeles, Calif. Bids Jan. 14, CD 11-26.

▲ M. H. Golden Constr. Co. & L. E. Dixon Co., 3385 Noell St., San Diego, Calif., CA $6,183,085, reinforced, split level constr., College Grove SHOPPING CENTER, College Ave. and Federal Freeway 94, SAN DIEGO, CALIF.; College Grove Assocs., 502 Spreckels Bldg., San Diego, Calif.; John Graham & Co., 1426 5th St., Seattle, Wash., archts.; James Michaelsen, Land Title Bldg., San Diego, Calif., resident archt. Bids Oct. 9, awarded Jan. 12, CD 10-28, under LB.

▲ Codding Constr. Co., 1200 Yulupa Ave., Santa Rosa, Calif., CA $1,500,000, Mayette Village SHOPPING CENTER, SANTA ROSA, CALIF.; Codding Enterprise, 4000 Montgomery Dr., Santa Rosa, Calif.; Henry Wallace, 3980 Montgomery Dr., Santa Rosa, Calif., engr., CD 3-27-57, under Calif., Modesto.

CANADA

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
February 3 Manitoba
STREETS AND ROADS
February 12 Northwest Territories

HEAVY CONSTRUCTION—LB & CA

▲ Schwenger Constr. Ltd., 1255 Beach Rd., Hamilton, Ont., LB $1,917,325, 12 bidders, tunnel interceptor sewers, Woodward Ave. sewage treatment plant, Contrs. 2 and 3, incl. 6,000 ft 18½ ft. and 8,200 ft 21½ ft. tunnel, HAMILTON, ONT.; City of Hamilton, City Hall, Hamilton, Ont. Bids Jan. 7, CD 12-5.

BUILDINGS—LB & CA

▲ Marwell Constr. Ltd., 1500 W. Georgia St., Vancouver, B. C., CA Est. $2,000,000, 16 story, 78 x 120 ft. reinforcement OFFICES, southwest corner Granville and Hastings Sts., VANCOUVER, B. C.; United Kingdom Properties Ltd., 509 Richards St., Vancouver, B. C.; D. C. Simpson, 1350 W. Pender, Vancouver, B. C., archt.; Read, Jones & Christoffersen, 1161 Melville, Vancouver, B. C., engrs.

▲ Jackson-Lewis Co. Ltd., 10 St. Mary St., Toronto, Ont., CA $2,250,000, 3 story, bsmt., brick, reinforced steel SCHOOL, TORONTO, ONT.; Bd. Governors, Upper Canada College, Avenue Rd. and Lansdale Blvd., Toronto, Ont. Bids Dec. 17, awarded Jan. 16, CD 12-10.

▲ Canada Iron Foundries, Ltd., 227 rue St. Maurice, Three Rivers, and Sun Life Bldg., Montreal, Que., Owner Builds, $1,700,000, 95x400 ft. reinforcement, structural steel SHOP, THREE RIVERS, QUE.; Fred A. Dawson, 4631 Sherbrooke St. W., Montreal, Que., archt.; Dr. Felix M. Kruus, 1255 Laird Blvd., Mount Royal, Montreal, Que., engr., CD 10-9-57.

▲ Dawson & Hall Ltd., 775 Clark Dr., Vancouver, B. C., LB $1,423,661 (17 bidders), PROTESTANT RESIDENT HOSTEL, CATHOLIC RESIDENT HOSTEL, PRINCIPAL'S RESIDENCE, STAFF RESIDENCE, WHITEHORSE, YUKON TERRITORIES; Dept. P. Wks., Hunter Bldg., Ottawa, Ont. Bids Jan. 7, CD 1-6.

LATIN AMERICA

HEAVY CONSTRUCTION—LB & CA

▲ GUATEMALA—Office Bienes Nacionales Licitaciones y Asuntos Alemanes, Guatemala City; Thompson-Cornwall Inc., Chrysler Bldg., New York, N. Y., U. S. A., CA $2,449,625, paving 155 mi. Pan American Highway, Guatemala Project 28, CD 12-16, under LB.

▲ VENEZUELA—National Institute of Sanitary Wks., Caracas; Brown & Root Construcciones C. A. (Brown & Root), 4100 Clinton Dr., Houston, Tex., U. S. A., LB $6,533,300, 7 months completion, LB $6,233,300, 10 months completion, 14.3 mi. 30 in. submarine water pipe from Morro de Chacopata to Margarita Island and 2 mi. 8 in. water pipe line from Morro in Chacopata to Coche Island.

BUILDINGS—LB & CA

▲ E. G. M. Cape International Ltd., P. O. Box 1107, Saint John, N. B., Canada, CA $4,000,000, structural steel frame, bsmt., ground floor and 5 bedroom floors, HOTEL, HAMILTON, BERMUDA; Carroll Dooley, Hotel Bermudiana, Hamilton, Bermuda; H. Fitzroy Robinson, London, England, archt.

AMERICANS ABROAD

HEAVY CONSTRUCTION—LB & CA

▲ Raymond International U. K. Ltd., London, England; sub Raymond International, Inc., 140 Cedar St., New York, N. Y., U. S. A., CA $5,000,000, fuel oil loading jetty and boat harbor, Kharg Island, IRAN; Iranian Oil Exploration & Producing Co., Tehran, Iran.

▲ Raymond International U. K. Ltd., London, England; sub Raymond International, Inc., 140 Cedar St., New York, N. Y., U. S. A., CA $12,000,000, Khor-Al-Amaya Deep water tanker berth, inc. 3,100 ft. main dock, 2 mooring dolphins, dock berth and crewmans bridge, 25 miles off shore from Fao, IRAQ; Basrah Petroleum Co. (sub: Iraq Petroleum Co.), Baghdad.

FOREIGN

HEAVY CONSTRUCTION—BA

▲ Ghana, Takoradi—BA Y.S.; Ghana Railway & Harbor Auth., c/o Messrs. "NEDECO", 48 Javastraat, The Hague, Netherlands, jetty $1,400,000. Plans deposit $28.

HEAVY CONSTRUCTION—LB & CA

▲ Siemens, Berlin, West Germany, and English Electric Co., London, England, CA Est. $14,000,000, Sennar Dam and hydro-electric project, on Blue Nile, SUDAN; Govt. of Sudan, Khartoum.

PROPOSED PROJECTS

WATER SUPPLY

▲ Colo., Denver—Water Bd., City & County Bldg., Diversion Dam to impound Western Slope Water from Roberts Tunnel, alternate plants: 96 ft. dam $13,700,000 and 231 ft. dam $26,100,000, Tipton & Kalmbach, Inc., Insurance Bldg., consult. engr., CD 8-12-55.

▲ Ill., Chicago—Dpt. of Purchase, City, City Hall, install piping equipment, Central Water Filtration plant, $2,000,000. Bids about February 1.
Install motors, pumps and motors at Central Water Filtration plant, $1,000,000. Bids about February 1.
Install mixing equipment Central Water Filtration plant, $1,500,000. Bids about March 1.
Install scraping equipment and collectors, Central Water Filtration plant, $2,000,000. Bids about April 1.
Headhouse constr., contract B, Central Water Filtration plant, $4,000,000. Bids about July 1.
Install surf. wash piping, Central Water Filtration plant, $1,000,000. Bids about August 1.
Install filter equipment Central Water filtration plant, $3,000,000. Bids about December 30.

▲ O., Canton—City, City Hall, well field, filtration plant, 16 mi. pipe line to city, improv. distr. sys., Tuscarawas Co., $6,728,066. Bessenger Hoch & Assoc., 1006 Grant, Akron, O., consult. engrs.

▲ Va., Falls Church—City, City Hall, water sys. exten., $1,500,000. Wiley & Wilson, 711 W. Main St., Richmond, consult. engrs., CD 11-7.

SEWERS, WASTE DISPOSAL

▲ Fla., Dania—City, City Hall, sewage disposal plant and lines, $2,000,000. Philpott Ross & Saarinen, 1016 NE 2 Ave., Fort Lauderdale, consult. engrs., CD 1-8.

▲ Ill., Swansea (Belleville P. O.)—Village, Village Hall, treatment plant, sanitary sewers, $1,000,000. CD 1-19-59.

▲ N. C., Asheboro—City, City Hall, bond election Jan. 29, sanitary sewer improv., $1,995,000. Platt & Davis, 111 Corcoran St., Durham, consult. engrs.

▲ O., Elyria—City, City Hall, sewage plant addn., $2,500,000. Havens & Emerson, 640 Lexker Bldg., Cleveland 14, O., consult. engrs., CD 11-28-56.

▲ Tex., Austin—Travis Co., Imprv. Dist. 1, Austin, sewerage facilities, $1,097,000. Marvin E. Tuney, 1429 Guadalupe St., consult. engr.

▲ Ont., Toronto—Municipality of Metropolitan Toronto, 67 Adelaide St. E., sewer under Eastwood Rd. with outfall on Woodbine Ave. to Lake, Ontario, $1,107,595.

BRIDGES

▲ TEXAS, State Hy. Dpt., Austin.
Galveston Co.—causeway across Galveston Bay connecting city with mainland, $4,480,000.

STREETS AND ROADS

▲ Ill., Decatur—City, City Hall, $2,500,000 bond election Feb. 10, street improv., CD 9-11-58.

▲ NEBRASKA—State Dpt. Rds. & Irrigation, State House, Lincoln.
Douglas Co.—grading, structures and concrete surf. 2.7 mi. Hy. 33 from Irvington Southeast to 72nd St., $500,000.
Hall Co.—relocation U. S. 281 between Grand Island and Doniphan 9 mi., $500,000.
Otoe Co.—relocation Neb. 2 involving 12.9 mi. grading, continuing rebuilding 4 Hy. 2 between Lincoln and Nebraska City, between Palmyra and Syracuse, $1,350,000.
Sarpy Co.—grading, paving 3.5 mi. Hy. 370, and Hy. 31 from Papillion north to L. St., $368,000.
grading, building structures and providing concrete surf. 3.7 mi. Hy. 370 from Papillion West to Interstate 80, $585,000.
Saunders Co.—grading, culverts and high type surf. 17 mi., bridge across Platte River, $800,000.
between Ytan and Venice.
Scotts Bluff Co.—relocation U. S. 26, 3.8 mi., incl. a short bypass as Scottsbluff, $1,235,000.

▲ Wis., Milwaukee—City, City Hall, street constr. program for 1959, $1,700,000. E. A. Schmidt, city engr., CD 1-7-58.

AIRPORTS

▲† Calif., Lemoore—FUEL SYS.—Pub. Wks. Office, 12th Naval Dist., Room C 112, San Bruno, 1st and 2nd increments of fuel sys. at U. S. Naval Air Station, $1,500,000. Earl & Wright, 233 Sansome St., San Francisco, consult. engrs., CD 9-8.

▲ Conn., Windsor Locks—RUNWAYS, State P. Wks. Dpt., 1e5 Capitol Ave., Hartford, extension runways, Bradley Field, taxiways, crash and maintenance Bldg., freight terminal bldg., terminal bldg. addn., $1,300,000, CD 1-15-56.

▲ Que., Chicbougamau—AIRPORT, Dpt. of Transport, Hunter Bldg., Ottawa, Ont., airport, $1,000,000.

PUERTO RICO

▲ Puerto Rico—San Juan—OFFICE—El Mundo Enterprises Inc., Roosevelt Ave., 10 story, 492,430 sq. ft. newspaper and office bldg., TV, telemen and radio, WKAQ, $15,000,000. The Austin Co., 600 5 Ave., New York, N. Y., U. S. A., consult. engrs.

PUBLIC BUILDINGS

▲ Calif., Charter Oak—SCHOOLS—Charter Oak Elem. School Dist., $2,500,000, bond election Feb. 10, schools.

▲ Calif., La Jolla—INSTITUTE OF TECHNOLOGY and ENGINEERING—Bd. Regents, University of California, La Jolla, plans by Ripley & Gould, 2502 W. 3rd St., Los Angeles, Institute of Technology and Engineering, 1st stage of development, $15,000,000.

▲ Calif., Martinez—HOSPITAL—Veterans Admin., 1305 Franklin St., Oakland, plans by Confer & Willis and Hertzka & Knowles and Charles Luckman & Assoc., 3e40th St., Oakland, 500 bed Veterans Hospital, south of Arnold Hy., $9,700,000, CD 7-30.

▲ Calif., Redwood City—COUNTY OFFICE—San Mateo County, Hall of Justice, Redwood City, plans by Ellis & Sharpe, Albert W. Kahn, Irving R. Brown, Archts. Associated, 2120 27th Ave., San Mateo, County Office bldg., $1,750,000. R. Fisher, 816 Crocker Bldg., San Francisco, consult. engrs., CD 6-25.

▲ Colo., Canon City—SCHOOL, School Dist. No. 1, Fremont Co., $1,305,000, bond election Feb. 3, high school and addn. to Harrison and McKinley Schools, Wheeler & Lewis, 2215 W. 32 Denver, archts., CD 8-19.

▲ Conn., West Haven—SCHOOLS—Town, Town Hall, Northern Junior High School, $1,500,000, elementary school, Meloy Rd., Mohaven Heights, $500,000, elementary school, Studes School Area, $500,000, elementary school, Allingtown, $500,000.

▲ Ill., Park Forest—SCHOOL, etc., School Dist. 227, Sauk Trail, plans by Loebl, Rowlett, Scott & Assoc., 425 S. Main St., Bryan, Tex., high school, gymnasium, 203 N. Governors Hy., Olympia Fields, $1,500,000.

▲ La., Monroe—DORMITORIES—Northeast Louisiana State College, plans by Dormking Stubbs, 506-08 Humanidt Bldg., Monroe, La., Proj. LA-16-CH-240, women's dormitory, plans by Dorm-Livers & Heiser, P. O. Box 52, Monroe, La., men's dormitory, $2,000,000, CD 12-19.

▲† Me., Jonesport—HOUSING, Dist. P. Wks. Office, First Naval Dist., 495 Summer St., Boston, Mass., plans by Albert J. Hamilman Inc., 292 Court St., Auburn, Me., AB 4-7th 22467—Capehart housing, Radio Station, Cutler, $1,300,000. Bids in March-April.

▲ Md., Baltimore—Zone 2, plans by Meyer & Myers, Federal and Park Bldg., Zone 16, 1, 2 and 3, [illegible], $3,500,000-$4,000,000, CD 11-11.

▲ Md., Towson—SCHOOL, Baltimore Co., Bd. Ed., Eagle to Rd., Zone 4, plans by Meyer & Myers, 1315 St. Paul St., Baltimore, Zone 16, 1 and 2 story brick, concrete steel, [illegible], $1,030,000. V. P. R. Sale, 1706 Eye St., Washington, D. C., archt.; Mel Parker, 1706 Eye St., Washington, D. C., archt.; Parry, 117 Prospect St., Towson 2, Md., [illegible], engrs. Correction (owner) [illegible].

▲ Mass., Boston—HOUSING, for the ELDERLY, City Housing Auth., plans by Thomas F. McDonough, 370 Boylston St., housing for the elderly, Bromley Park, Roxbury, $1,000,000. F. [illegible].

▲ Minn., St. Paul—CENTER, RESEARCH, Regents of the University of Minnesota, 104 Administration Bldg., Minneapolis, Minn., Ellerbe & Green, 1421 University Ave., [illegible], Research Bldg., on St. Paul campus, $3,000,000. Constr. 1959. CD 4-7-58.

▲ Minn., Virginia—SCHOOL, Bd. Educ., Independent School Dist. No. 706, plans by Haarstick Lindgren & Assocs., N. 212 First Nat'l. Bank Bldg., St. Paul, $2,500,000. Constr. 1959.

▲ Miss., Jackson—A. DITORIUM, City, City Hall, plans by Overstreet, Ware & Ware, 414 S. State St., [illegible] brick, [illegible], [illegible], [illegible],

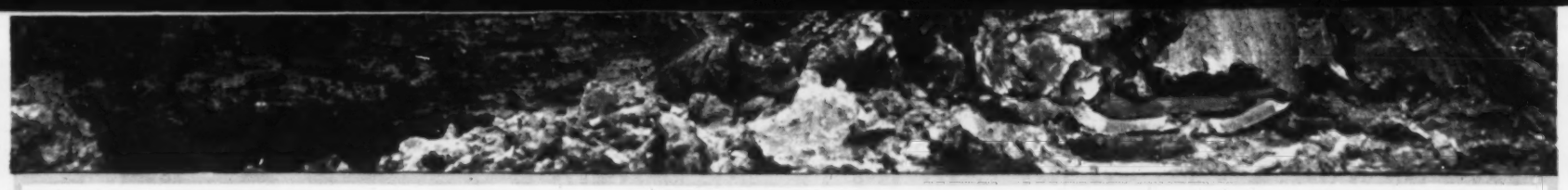
THE NEW ALLIS-CHALMERS TS-260

More profit capacity for you than anything near its size!

230 HORSEPOWER 17 YARDS HEAPED

Here's news worth swinging around to see...

For two years, the TS-260 has been the hottest motor scraper in the business . . . and now it's even better. If you're looking for new ways to boost net profit on your earthwork, we invite you to check these facts . . . then compare the new TS-260, dollar for dollar, with *any other make*. And since words don't really prove a thing, we hope you'll compare *on the job*.



230 horsepower – more power per struck yard than any other unit near its size.

30,000 pounds of rim pull in low gear – an even bigger edge over other makes than before.

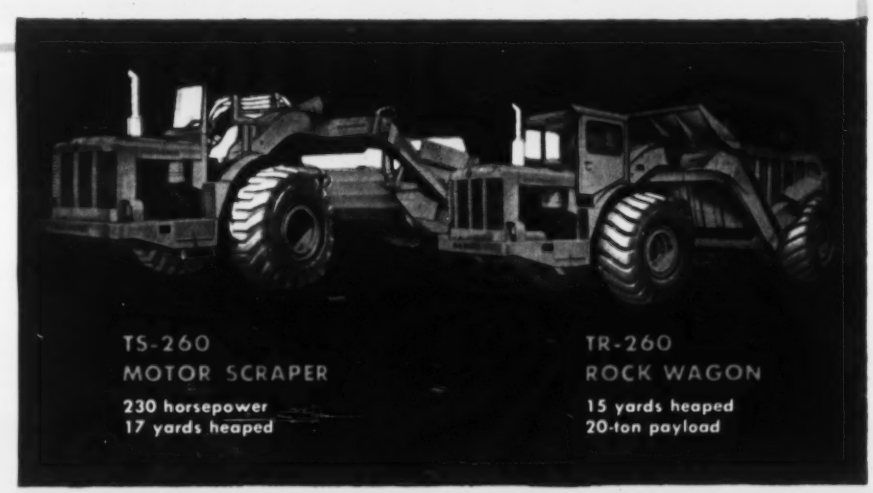
17 yards heaped capacity with low, wide bowl design and forced ejection, of course. You're sure of big loads . . . quick, clean dumping every time.

New KON-TORK torque proportioning differential – automatically concentrates power on wheel with best traction . . . mud, sand or gumbo.

180-degree turns in less than 30 feet to help you save cycle time in tight spots on narrow cuts or fills.

Five speeds to 28 mph . . . with constant mesh transmission and new air-actuated transmission brake for faster, easier shifting. The new TS-260 is easy to handle from cut to fill.

Opportunity for added profit . . . Interchangeable with the TS-260 scraper, the TR-260 rock wagon gives you a source of extra income on overhead loading jobs at a fraction of the cost of another special unit. *Allis-Chalmers, Construction Machinery Division, Milwaukee 1, Wisconsin.*



move ahead with **ALLIS-CHALMERS** ...power for a growing world

(Continued from page 71)

▲ **N. J., Bridgeton** — HOUSING — Bridgeton Housing Auth., plans by Barnett D. Singer, 15 Benmore Terrace, Bayonne, 150 unit housing. $1,250,000.

▲ **N. J., Franklinville**—SCHOOL—Bd. Educ. Regional Dist. of Elk & Franklin Twps., Referendum to approve project and authorize bonds Jan. 13, school, Blackwoodtown Rd. $1,750,000. Micklewright & Mountford, E. Stuyvesant Ave., Trenton, archts. CD 7/28.

▲ **N. J., South River**—SCHOOL—Bd. Educ., Lexington Ave., plans by Micklewright & Mountford, 90 Stuyvesant Ave., Trenton, high school, $1,750,000, Bids soon." CD 12/10/45.

▲ **N. J., Trenton**—SCHOOL—Bd. Educ., 9 S. Stockton St., plans by Micklewright & Mountford, 90 E. Stuyvesant Ave., elementary school to replace existing Cadwalader School, Edgewood Ave. area, $1,068,000; plans by Hankin, Stull & Backes, 495 W. Hanover St., elementary school, Girard Ave. to replace existing McClellan and Columbus Schools, $1,017,000; plans by Kramer, Hirsch & Carchidi, 115 W. State St., 10-room elementary school to be built on site of present McClellan School, $474,000; and elementary school, site of present Columbus School, $476,000. CD 4/23.

▲ **N. J., Trenton**—LABOR DPT.—State Dpt. Purchases & Property, State House, Trenton, plans by Frank Grad & Sons, 11 Commerce St., Newark, labor dpt. bldg., Delaware River, $9,000,000. CD 3/23/55.

▲ **N. J., Union City**—HOUSING—Housing Auth. of City of Union City, 3911 Hudson Blvd., 16 story apartment, Washington Park area, 4th to 8th Sts., Central Ave. and West St. $3,000,000.

▲ **N. M., Las Cruces**—HOSPITAL—Dona Ana Co., Bd. Commrs., Memorial General Hospital. $1,200,000-$2,500,000.

▲ **N. Y., Dunkirk**—COUNTY HOME—Bd. Supervs. Chautauqua Co., Court House, Mayville, County Home. $1,800,000, site changed. CD 1/6 under Mayville.

▲ **N. Y., Greenburgh**—HOUSING—Greenburgh Housing Auth., Tarrytown Rd., Elmsford, N. Y., low-rent housing for 100 families, Fairview Area. $1,634,000.

▲ **N. Y., North Tonawanda**—SCHOOL—Bd. Educ., 236 Goundry St., plans by Pfohl, Stoll & Roberts, 187 Niagara St., Buffalo, high school. $3,000,000. CD 12-22.

▲ **O., Akron**—SCHOOL—Springfield Twp. Bd. Educ., 2966 Sanitarium Dr., plans by W. B. Huff & Assocs., 1050 N. Main St., Junior High School. $1,280,000. CD 11/10.

▲ **O., Ashland**—SCHOOLS—Bd. Educ., bond election May 5, schools. $2,950,000. CD 11/10.

▲ **O., Newark**—SCHOOL—Newark P. Schools plans by Perkins & Will, 309 W. Jackson Blvd., Chicago 6, Ill., 1 and 2 story, structural steel, brick high school, $3,000,000. CD 5/13/57.

▲ **Tex., San Antonio**—PLANT, etc.—City Public Service Bd., Navarro and Villita Sts., 100,000-kw electric generating plant unit, W. B. Tuttle Plant $12,500,000 ($3,800,000 1959), natural gas sys. improvs. (mains, laterals, boosters stations, rehabilitation) $6,000,000, transmission line extens., transmission line improvs., substations, meters, rehabilitation $7,000,000, constr. 1959. CD 6/4/53.

▲ **Wash., Seattle**—SCHOOL—Shoreline Public Schools, E. 158 St. and 20 Ave. N.E., Zone 55, election March 3, on special levy to aid in financing high school. $2,344,978. CD 12/2.

▲ **Wash., Sedro Woolley**—HOSPITAL—State Dpt. of Institutions, Olympia, plans by Decker & Christenson, 1411 4 Ave. Bldg., Seattle, Zone 1, receiving, treatment, medical and surgical bldg. at Northern State Hospital. $1,793,200. CD 11/25.

▲ **Alta., Edmonton**—POST OFFICE—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., post office. $3,500,000.

▲ **Alta., Edmonton**—POSTAL TERMINAL—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., Postal Terminal A extens., 10426 98th St. $1,750,000.

▲ **Que., Louiseville**—HOME—Provincial Dpt. of Social Welfare, Parliament Bldgs., Quebec City, Home for Aged. $1,000,000.

▲ **Que., Quebec City**—FEDERAL—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., Old Age Pension and Family Allowances Office, Dupuis St. $2,500,000.

COMMERCIAL BUILDINGS

▲ **Alaska, Anchorage**—HOTEL—Walter J. Hickel, Anchorage and Michel T. Halbouty, 511 Westheimer Rd., Houston, Tex., plans by Hedrick & Stanley, 5201 Fannin St., Houston, Tex., 200 room hotel. $5,500,000. Edwin Crittenden & Assocs., Anchorage, assoc. archts. CD 1/14.

▲ **Alaska, Anchorage**—OFFICE—Walter J. Hickel, Anchorage and Michel T. Halbouty, 511 Westheimer Rd., Houston, Tex., plans by Hedrick & Stanley, 5201 Fannin St., Houston, Tex., 140,000 sq. ft. office. $4,500,000. Edwin Crittenden & Assocs., Anchorage, assoc. archts. CD 1/14.

▲ **Calif., Hayward**—HOSPITAL—St. Rose Hospital, Inc., c/o Stone, Mallov, Marraccini & Patterson, archts., 516 Mission St., San Francisco, St. Rose Hospital, Eastshore Hy. and Tennyson Rd. $4,000,000.

▲ **Calif., Livermore**—HOSPITAL—Hospital Committee for Livermore-Pleasanton Area, c/o Stone, Mallov, Marraccini & Patterson, archts., 516 Mission St., San Francisco, 1 story 40 bed Valley Memorial Hospital. $1,000,000.

▲ **Calif., San Rafael**—SUBDIVISION—Mrs. Ellen Ross Welcome, Lane, 32-acre housing subdivision, St. Francis Estates at end of Locust Ave. $1,000,000.

▲ **Colo., Denver**—HOSPITAL—St. Anthony's Hospital, West 16 and Quitman, plans by C. L. Monnot, 3011½ Classen Blvd., Oklahoma City, Okla. and Linder, Wright & White, 831 14 St., 5 story, 150 beds hospital addn. expansion. $3,000,000. CD 12/27/56.

▲ **Colo., Englewood** — HOSPITAL — Swedish Hospital, 3451 South Clarkson, plans by Fisher, Fisher & Davis, Denver National Bldg., Denver, 108-bed wing hospital expansion. $2,500,000.

▲ **Colo., Littleton**—SHOPPING CENTER—Jack Wagenblast, 2141 S. Broadway, plans by Horace L. Brand, c/o owner, shopping center, 120,000 sq. ft. parking area. $1,000,000. CD 6/30.

▲ **Ga., Atlanta** — HOSPITAL — Holy Family Hospital, Medical Center, 33 Payer St. N.E., 150-bed hospital at Harwell and Collier Rds. $1,250,000.

▲ **Ill., Chicago**—BANK—Bell Savings & Loan Assn., 79 W. Monroe St., Zone 3, 3 story, savings and loan bank addn. $1,000,000. Bids about Aug. 1.

▲ **Ill., Chicago**—BANK—Mercantile Bank, 541 W. Jackson Blvd., plans by Friedman, Alschuler & Sincere, 223 W. Jackson Blvd., 4 story bank and 11 story office, Clinton and Jackson Blvd. $6,000,000. CD 12/12/57.

▲ **Ill., Chicago**—SCHOOL—University of Chicago, 5801 Ellis Ave., plans by Perkins & Will, 309 W. Jackson Blvd., Zone 6, 3 story, 92,000 sq. ft. high school addn. $2,000,000.

▲ **Ill., River Forest**—RESIDENCE HALL—Concordia College, 7400 Augusta St., plans by Perkins & Will, 309 W. Jackson Blvd., Chicago, Zone 6, men's residence hall, incl. heating plant and service bldg., $1,150,000.

▲ **Ind., Fort Wayne**—OFFICE—Midwestern United Life Insurance Co., 229 W. Berry St., office bldg., east side of U. S. 24 one mile west of Time Corners. $1,000,000.

▲ **Ind., Indianapolis** — OFFICE-BANK — Merchants National Bnak & Trust Co., Indiana Trust Bldg., plans by Lennox, Matthews, Simmons & Ford, 3949 Meadows Sq., 3 story, 60,000 sq. ft. office-bank, $2,000,000. CD 12/11.

▲ **Ind., Indianapolis** — FINE ARTS — Trustees, Butler University, fine arts bldg. on campus, at N.W. corner 46th and Sunset Sts. $2,000,000.

▲ **Ind., Noblesville** — HOSPITAL — Riverside Hospital Foundation, 4 story wing hospital addn. $1,000,000.

▲ **Ind., Plainfield** — HOMES — Owners, c/o Ralph G. Woolpert, consult. engr., 360 W. First St., Dayton, O., 1,300 homes, shopping center, Chas. S. Rauh farm site. $5,000,000.

▲ **Ind., Valparaiso**—DORMITORY—Valparaiso University, 651 College Ave., plans by Stade, Dolan & Anderson, 819 Busse Hy., Park Ridge, Ill., 2 or 3 story, brick girls dormitory bldg. on campus. $1,000,000.

▲ **Iowa, Bettendorf**—STORES, etc.—Summit Center Corp., 120,000 sq. ft. floor for stores and offices, southeast corner Kimberly Hy. and Middle Rd. $1,500,000.

▲ **Mass., Cambridge**—OFFICE—Owner, c/o R. M. Bradley & Co., archts., 250 Boylston St., Boston, 8 story office. $2,400,000. Bids in Spring.

▲ **Minn., St. Paul**—NURSING HOME—A. H. Wilder Foundation, Wilder Bldg., plans by Ellerbe & Co., E. 505 First Natl. Bank Bldg., St. Paul, Minn., 3 story Nursing Home, George St. and Humboldt Ave. $1,300,000. Constr. 1959.

▲ **Mo., Kansas City**—SHOPPING CENTER—Paul Hamilton Development Co., 1016 Baltimore, Kansas City, Mo., plans by Frangkiser & Hutchens, 7926 State Line, Kansas City, Mo., 220,000 sq. ft. Northland Shopping Center, incl. parking. $1,000,000.

▲ **Mo., Kansas City**—HOTEL—Trianon Co., Hotel Muehlebach, Kansas City, Mo., 15 story hotel addn. $2,000,000.

▲ **Mo., Kirksville** — DORMITORY, etc. — College of Osteopathy & Surgery, (Mo. 23-Ch-51D) men's dormitory (76) and family housing (24) $1,000,000.

▲ **N. J., Newark**—OFFICE—J. M. Tenney Corp., 535 S. Ave., New York, N. Y., plans by Freidin-Studley Assocs., 342 Madison Ave., New York, N. Y., 12 story office bldg., 657 Broad St. $2,500,000.

▲ **N. Y., Buffalo**—STORE—Adam, Meldrim & Anderson, 404 Main St., plans by G. Morton Wolfe, 1377 Main St., 3 story, 27,000 sq. ft. store addn., University Plaza, Main St. city line. $1,000,000.

▲ **N. Y., New York**—DORMITORY, etc.—Barnard College, 606 W. 120th St., New York, N. Y., plans by O'Connor and Kilham, 101 Park Ave., New York 17, N. Y., Dormitory and Student Center, Broadway and W. 116th St. $2,200,000. CD 1/7.

▲ **N. Y., West Seneca**—STORE, etc.—South Gate Plaza, plans by Joseph J. Geigland, 234 Orange St., Buffalo, N. Y., 2 story, 140,000 sq. ft. masonry store, incl. filling station, parking facilities. $1,800,000. Sears Roebuck Co., lessee.

▲ **O., Parma**—SHOPPING CENTER—Parmatown, Inc., 700 Marshall Blvd., Cleveland, Zone 13, plans by John Graham & Co., 444 5th Ave., New York, N. Y., and Weinberg & Teare, Citizens Bldg., Cleveland, Zone 14, 209,000 sq. ft. Parmatown Shopping Center addn. $8,000,000.

▲ **Tenn., Nashville**—HOSPITAL—St. Thomas Hospital, Hayes Ave., plans by Woolwine, Harwood & Clark, 21st floor, Life & Casualty Tower, 102 bed hospital addn. for Sisters of Charity. $2,500,000. CD 1/14/58.

▲ **Tex., Beaumont**—OFFICE, etc.—Raymond D. Nasher, Republic Bank Bldg. and Centex Constr. Co., 4606 Greenville Ave., Dallas, plans by Harrell & Hamilton, 819 Republic Bank Bldg., Dallas, archts.-consult. engrs., 12, 15 or 20 story office. $2,000,000-$4,000,000, auto parking garage, $275,000. Sun Oil Co. primary lessee. CD 1/7.

▲ **Tex., Houston**—HOTEL, etc.—(Syndicate) Hotel Development Co. of Texas, c/o Curtis & Davis, archts.-consult. engrs., 720 Union St., New Orleans, La., 350-500 room hotel $5,000,000-$10,000,000, auto parking garage, $500,000. Hotel Corp. of America, lessee.

▲ **Tex., San Antonio**—DWELLINGS—Denton & Karren Co., Inc., 1042 Milam Bldg., plans by Hesson & May, 148 Olmos Dr. West and Reginald Roberts Assocs., 2600 N. McCullough Ave., 135 dwellings. $2,146,475. CD 11/26, under Lloyd A. Denton & Assocs. as owners.

▲ **Alta., Lethbridge**—OFFICE—McIntyre Ranching Co., 529 6th St. S., office, 5th and 8th Aves. S. $1,000,000.

▲ **B. C., Vancouver**—HOTEL—Owner, c/o Allen C. Smith & Assocs., engrs., 1075 Melville St., 4 story, 120 x 225 ft., 105 room luxury hotel, incl. parking. $1,000,000. Constr. in February.

INDUSTRIAL BUILDINGS

▲ **Ark., Crossett**—MILL—Crossett Paper Mills (Division of Crossett Co.) addn., incl. 180 ft. bleached floorboard machine room, installation 29 addnl. dryers, etc. $3,400,000. Rust Engineering Co., 2316 4 Ave. N., Birmingham, Ala., consult. engr.

▲ **Calif., Herald**—PLANT—Mexico Refactories, P.O. Box 267, Mexico, Mo., mfg. plant for mfg. fire brick. $2,000,000.

▲ **Ill., Peoria**—BREWERY—Pabst Brewing Co., 917 W. Juneau St., Milwaukee, Wis., brewery expansion, incl. bottling lines and aging facilities. $1,000,000. Bids about May.

▲ **Ky., Louisville**—PRINTING PLANT—Fawcett-Dearing Printing Co., 1100 W. Broadway, plans by O. P. Ward, 1511 Washington Bldg., Zone 2, printing plant adjacent to present plant, 12th and Broadway. $1,000,000. Constr. in Spring.

▲ **Pa., Lancaster**—PLANT, etc.—Ohio Boxboard Co., Rittman, O., 80,000 sq. ft. mfg. plant, 6,000 sq. ft. office bldg. $2,000,000.

▲ **Wyoming**—PLANT—Federal Uranium Corp., 1370 3rd West St., Salt Lake City, Utah, 520 tons per day uranium processing plant, Gas Hills Section, east of Riverton. $3,370,000.

▲ **Que., Oka**—MILL—St. Lawrence River Mines, c/o P. E. Riverin, Dpt. of Mining, University of Montreal, 2900 Block, Mont Royal, 500 ton day mill, columbium mining development. $2,500,000. To go ahead 1961.

▲ **Que., Ste. Therese**—PLANT—Reichold Chemical (Canada) Ltd., 1919 Wilson Ave., Toronto, anhydride chemical plant extens. $1,000,000.

UNCLASSIFIED

▲ **Ill., Chicago**—SUBWAYS, etc.—Chicago Transit Authority, Merchandise Mart, Zone 54:
West Side Subway (Congress Expressway) exten. to Des Plaines Ave. in Forest Park. $14,636,000.
Northwest Rapid Transit—Logan Square elevated to Northwest Expressway. $31,000,000.
Washington bus subway in Washington St. between Canal and Michigan Ave., $15,000,000.
South Side Rapid Transit—in median strip of South Expressway from 40 St. to 103 St., $31,750,000.
Southwest Rapid Transit from Halsted St. along Illinois-Michigan Canal to Cicero Ave., $7,000,000.
subway through central business district, $25,000,000.
Jackson Blvd. Subway, E-W subway in Jackson Blvd. connecting West Side Subway to Grant Park, $20,000,000.
Lake St. routing via West Side subway, Lake St. Rapid Transit and West Side Subway via Chicago Belt R.R. elevated r.w. $3,500,000.
Englewood Clearing extens., Englewood Rapid Transit from 63 St. and Loomis Ave. into Clearing Dist. at 63 and Cicero Sts. $20,500,000.
California-Western Ave. Rapid Transit—rapid transit sys. route in cross-town expressway. $14,000,000. CD 6/11/57.

▲ **Ill., Chicago**—TV TOWER, etc.—WGN TV Station, 441 N. Michigan Ave., Zone 11, 2½ story, 200 ft. structural steel TV tower and broadcasting station, Campbell Ave. and Addison St. $3,000,000.

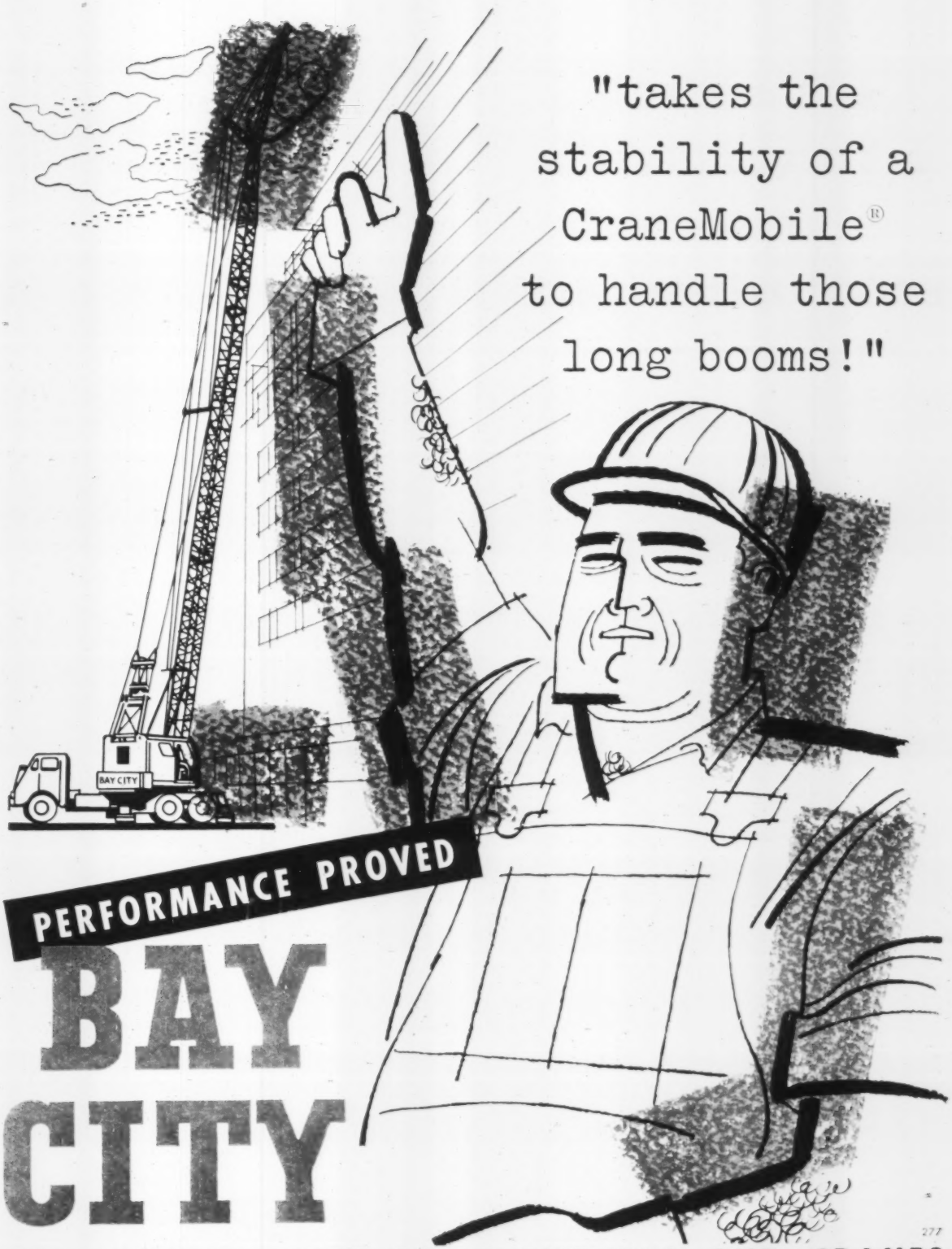
▲ **Ind., Fort Wayne**—UNDERGROUND POWER DISTRIBUTION SYSTEM—Indiana & Michigan Elec. Co., 2101 Spy Run, underground power distr. sys. $1,500,000. 1959 program.

▲ **Iowa, Davenport**—RECREATION CENTER—Scott Co. Conservation Bd., Co. Courthouse, development county recreation center on 1,220-acre tract, east of Hy. 61, Butler Twp., about 14 mi. north of here. $1,000,000. Park Planning Assocs., 4081½ Douglas St., Ames, consult. engrs.

▲ **Ohio**—GAS STORAGE FACILITIES—East Ohio Gas Co., 1405 E. Sixth, Cleveland, enlarge gas storage facilities in underground area of Stark-Summit Counties near Doylestown, over $1,000,000; gas drilling program for 1959 to incl. drilling 15 new production wells to depths of 3,500 ft. in northeastern Ohio area, $605,000, enlarge underground gas storage piping sys. Stark-Summit Co. Storage Field, Doylestown $180,000. CD 10/10/52.

▲ **O., Toledo** — RACE TRACK, etc. — Toledo Raceway Park, 210 E. Alexis Rd., horse race track, clubhouse, grandstands, etc., Dixie Hy. and Alexis Rd. $1,000,000. Constr. early Spring.

(Proposal Advertisements see pp. 82 to 84)



PERFORMANCE PROVED

BAY CITY

277

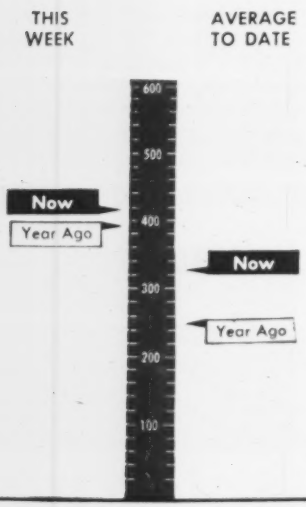
THE WORLD'S BEST BUILT SHOVELS AND CRANES

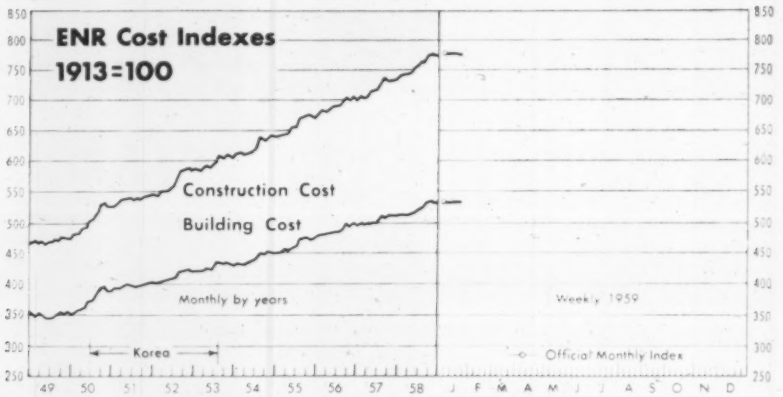
BAY CITY SHOVELS INC., BAY CITY, MICHIGAN, U.S.A.

75

Construction Scoreboard

CONTRACTS . . .





CURRENT COST INDEXES

ENR INDEXES (1913=100), 20-cities' average	Week of Jan. 22 1959	% Change from Dec. 25 1958	% Change from Jan. 23 1958
Construction Cost	778.48	+0.6	+4.7
Building Cost	536.91	+0.4	+4.0

Official January Indexes appeared here Jan. 8. Official February Indexes will appear here next week.

To convert above indexes to 1926 = 100: Divide Construction Cost by 2.080; Building Cost by 1.850.
To convert above indexes to 1949 = 100: Divide Construction Cost by 4.770; Building Cost by 3.518.

AMOUNT OF CONTRACTS LET

By Ownership	This Week millions	Cum. 5 wks 1959 millions	Chge '58-'59 %
All Heavy Constr.	$418.2	$1,641.1	+30
Private	231.4	685.5	+32
Public	186.8	955.6	+30
State & Municipal	125.9	655.0	+7
Federal	60.9	300.6	+38
By Type of Work			
Public			
Waterworks	8.0	34.4	+50
Sewerage	10.7	57.6	−3
Bridges*	15.7	72.6	+165
Highways	39.1	231.9	+19
Earthwork, Waterways	10.3	55.8	−53
Buildings, Excl. Housing	67.3	276.0	+56
Housing	5.7	18.8	−41
Unclassified	30.0	175.5	+286
Private			
Buildings			
Mass Housing	93.3	247.7	+36
Commercial	36.5	190.3	+48
Industrial	88.8	205.7	+19
Unclassified	12.8	41.8	+9

NOTE: Minimum size projects included are: Waterworks and waterways, $53,000; other public works, $88,000; industrial buildings, $110,000; other buildings, $400,000.

. . . CAPITAL

New Capital for Construction	Week of Jan. 22 millions	Cum. 4 wks 1959 millions	Chge '58-'59 %
Corporate Securities	$ 66.5	$165.6	−45
State and Municipal:			
All Except Housing	147.4	430.0	−19
Housing	1.3	1.3	+86
Federal Loans	0.5	4.5	+84
Federal Aid	...	...	...
Total Nonfederal	$215.7	$601.4	−30
Federal Appropriations:			
Projects in U. S.	...	...	...
Outside U. S.	...	...	...
Total New Capital	$215.7	$601.4	−30

BACKLOG OF PROPOSED HEAVY CONSTRUCTION

	December 1958 (millions)	Percent Change from last Month	Percent Change from last Year
Total U. S. (ENR reported)	$114,175	+0.4	+2.4
By Ownership			
Private	49,505	+1.0	+5.5
State & Municipal	50,593	−0.02	+0.1
Federal	14,078	−0.4	+0.5
By Type of Work			
Waterworks	2,660	+1.2	+9.8
Sewerage	3,576	−0.5	+6.4
Bridges	3,336	−1.4	+0.7
Highways	12,920	−1.1	−2.0
Earthwork, Waterways	11,906	−0.03	−3.7
Public Buildings	20,658	+0.7	+2.2
Industrial Buildings	17,075	+1.9	+1.8
Commercial Buildings	22,392	+0.4	+10.6
Unclassified, Private	10,038*	+0.6	+1.4
Unclassified, Public	9,614	−0.3	+0.9

* Includes private bridges, $83 million

FLOW OF NEW PROJECTS INTO THE BACKLOG

	1958 Dec. millions	1958 12-months millions	Percent Change from '57 Dec.	Percent Change from '57 Year Cum.
Total U. S. (ENR reported)	$1,610	$16,650	+20.0	−18.3
By Ownership				
Private	1,079	7,353	+100.1	−17.2
State & Municipal	529	7,051	−27.0	−26.9
Federal	63	2,247	−42.7	+21.9
By Type of Work				
Waterworks	44	510	+13.0	+3.9
Sewerage	24	733	−38.4	+19.6
Bridges	2	413	−94.0	−36.6
Highways	53	1,777	−79.7	−29.0
Earthwork, Waterways	43	678	+1,292.6	−58.0
Public Buildings	377	4,061	+23.4	−5.6
Industrial Buildings	193	1,748	+136.8	−44.7
Commercial: Mass Housing	183	2,214	−16.4	−1.1
Other Building	213	2,876	+66.3	+17.4
Unclassified, Private	130	513	+97.8	−50.2
Unclassified, Public	47	1,125	−64.6	−14.6

FLOW OF PROJECTS OUT OF BACKLOG INTO CONTRACTS

Total U. S. (ENR reported)	$792	$10,179	+56.4	+8.7
By Ownership				
Private	243	2,791	+31.0	−20.4
State and Municipal	438	5,598	+55.1	+22.2
Federal	111	1,790	+139.3	+39.5

Can Bid Shopping Be Curbed?

- **"It's the greatest sin in the industry," says an Atlanta contractor, and many others seem to agree with him. But the practice is still widespread.**

- **In some areas, there are experimental plans designed to eliminate bid shopping. Here's a report on what they are and how they're working . . .**

Bid shopping and peddling may not be the "greatest sin" in construction. But it's a tough problem for many contractors and subs. Some of them describe it as a "cancer" in the industry and a practice that has to be curtailed.

There have been attempts to push anti-bid shopping legislation through Congress and in local legislatures.

It's possible that legislative plans will appear in eight states this year, an ENR survey shows. They are: Texas, Massachusetts, Arkansas, North Carolina, Florida, New York, Ohio and Pennsylvania. Some will be seen for the first time; others will be taking a perennial bow.

The proposals will include licensing measures, introduction of single-package bidding or a change from single-package bidding to separate bids from generals and subcontractors. But no matter what form the proposals take, all will be aimed at improving bidding procedures and minimizing bid shopping.

Various methods are being used to curb bid shopping and peddling, but all of them seem to have drawbacks. Here are the most important methods:

- Bid depositories.
- Bid registration on package contracts.
- Separate contracts for general and subcontractors.
- Codes of ethics.
- Two-hour and four-hour bid plans.

The bid depository seems to hold out the best hope for curbing abuses in subcontractors' bidding procedures, some contractors believe. It is now working effectively in Seattle, Columbus, Dallas, Ft. Worth, Houston, Fresno, San Francisco, Stockton and St. Paul.

The new St. Paul plan is typical of the bid depositories. Each member of the local chapter of the National Electrical Contractors Association, when he wishes to bid, furnishes a designated bank with initial information on the job, type of work and other details. The bank then gives that contractor the names of any others who have also furnished information on that job.

Each contractor deposits a sealed bid with the bank. The bank holds these bids until after the general contract is awarded. Two hours after the contract is let, the bank opens the bids, tabulates the information and forwards it to the NECA chapter manager. He then makes the information public, preventing the general contractor from misrepresenting the low bid if he starts to bid-shop (ENR Dec. 25, 1958, p 124).

In the Fresno plan, a general contractor may remove sealed bids from the depository. In doing so, he is making a tentative contract with the subcontractor who supplied the lowest bid, a sealed copy of which is retained by the depository. The general contractor, if he wins the contract, is then legally obligated to accept the subcontractor who submitted the low bid.

Although many subcontractors' associations are now considering bid depositories, two loopholes hamper its wide acceptance:

- The plan requires almost 100% participation by the subcontractors within a given trade in the community. Contractors who refuse to join gain a competitive advantage over participants, thus minimizing the effectiveness of the plan. Because of the need for complete cooperation, only bid depositories within a local area and restricted to one or a few trades are successful.

- The plan can lead to collusion among subcontractors in a given trade. The NECA warns its members the plan has been used as a "cloak for bid rigging, price-fixing or other restraint of trade." The Federal Trade Commission has sued subcontractor groups that used the bid depository to reduce competition rather than promote it.

In Massachusetts, bidding procedures on public works are established by statute and resemble the bid depository system. State officials call it the "best system in the country."

Subcontractors are required to file sealed bids with the awarding agency. The agency opens bids publicly and then forwards the list of bidders to the general contractors. The general contractor need not accept the lowest bidder, but after he chooses his subcontractor he must stick with him. Substitutions are permitted only when the sub selected is financially or professionally unable to perform the work.

Bid registration laws are a common means of tightening subcontractors' bidding procedures. They require a general contractor to list his subs when he submits his package bid.

In California, for example, the Subcontractor's Listing Law prohibits general contractors from substituting subcontractors not listed in the package bid, without a specified cause and without approval by the awarding agency. General contractors who violate the law are penalized 20% of the amount of the subcontract involved.

Some registration laws allow the general contractor five days from date of contract award to change the subs listed in the original package bid. Critics say these laws merely limit the duration of bid shopping, without eliminating the practice.

The same critics add that even laws requiring a general contractor to remain with his listed sub from the day of contract award do not wipe out bid shopping. Instead, the general contractors shop the subcontractors before they submit their package bid.

Laws requiring separate contracts for subcontractors and general contractors on public works are strongly favored by most subcontractors' associations.

(Turn the page)

What Is Bid Shopping?

When a general contractor threatens to take his business away from a subcontractor unless the sub cuts his bid, he is "bid shopping."

When a subcontractor offers to do a job for less than the previous low bid, he is "bid peddling."

Separate contract laws require subcontractors to submit their own bids on a job and sign their contracts directly with the awarding agency.

New York State, for example, requires four separate contracts—structural, plumbing, heating and air conditioning and electrical.

Opponents of separate contract laws argue that the procedure fails to centralize responsibility. They say it results in slower construction schedules and less efficient construction management. On the other hand, they contend, the single contract method places responsibility where it should be—on the general contractor. "When you have a half a dozen subs responsible to the owner, and not the general contractor, you have an awful mess," says an Oregon contractor.

Proponents of the separate contracts say it discourages bid shopping and peddling.

"Furthermore," says a Dallas subcontractor, "mechanical and electrical work sometimes represents 50% to 85% of the total dollar cost of a project. With this the case, it is rather ridiculous to place the holders of these contracts under the control of another as subcontractors."

In their fight for separate contracts, plumbers and other subcontracting groups have been consistently opposed by a coalition of the Associated General Contractors of America and mechanical specialty contractors groups (including the National Electrical Contractors Association, Mechanical Contractors Association, and Sheet Metal Contractors).

That was the way the sides lined up on the anti-bid-shopping bill that died in the Senate last year. The bill called for registration of subs by the general contractor in his bid for federal work over $100,000.

A code of Ethical Bidding Practices adopted by St. Louis subcontractors and the local chapter of the AGC is meeting with some success. The code sets forth in detail a bidding procedure that makes bid shopping and peddling virtually impossible.

It requires a subcontractor to submit his bid to the general contractor within four hours of the general contractor's deadline. It also prohibits altering a bid once it has been submitted and forbids a general contractor from quoting subcontract bids lower than those he has actually received.

Some construction men in other parts of the country think the codes are a step in the right direction. "Ethics in the building industry have gone to the dogs," says one Ohio builder.

But others say the codes are too idealistic to work in practice.

Airports: Collision Coming

Big Democratic construction bill will test President's strength; outcome may decide fate of other programs

Democratic Congressional leaders are racing to lay a $575-million airport construction bill before President Eisenhower as an early challenge to his "hold-the-line" plea on federal spending.

They are confident Congress will override a veto of the bill, which they may have on the President's desk before mid-February.

The issue—and the clear edge held by advocates of the stepped-up airport aid program—was evident last week as Sen. A. S. (Mike) Monroney's aviation subcommittee opened hearings on two proposals:

• The Monroney bill (S. 1), co-sponsored by 44 Senators, would authorize the Federal Aviation Agency to spend $100 million per year for the next five years on a matching fund basis. And a special fund of $75 million would be provided to meet acute need for jet-age improvements at some airports. A discretionary allocation beginning July 1 could be spent without regard to the state apportionment formula under which the rest of the money is allocated.

• The Administration program attempts to hold the federal airport aid program to $63 million in the next fiscal year—roughly the current level. The White House also wants to start an orderly withdrawal from the airport grant program. Thus, outlays would taper off to $55 million in fiscal year 1961, $45 million in fiscal 1962 and $35 million in fiscal 1963.

Elwood Quesada, FAA administrator, who spoke for the President's program, notes that the federal government has contributed $2.6 billion to civil airport development in the last 25 years.

He argued that "aviation has come of age. We must look forward to the day, in the not-very-distant future, when the vast majority of our airports will . . . be self-sustaining."

Witnesses who crowded the hearing room in behalf of the Monroney bill were clearly impatient with the idea that federal aid should be diminished in the face of problems created by jet aircraft and the growth of aviation in general.

Atlanta Mayor William B. Hartsfield endorsed the Monroney bill in behalf of the American Municipal Association and the U. S. Conference of Mayors. He said Administration "dilly-dallying" already has caused suspension of many airport construction plans. He added local governments have provided most of the money spent on airports.

Spokesmen for the nation's trunk airlines testified that studies show $1 billion will be needed for airport development in the next four years. Local and state sources can only supply about half of this, they said.

Although the Monroney bill thus has overwhelming support of the aviation industry, there is some desire for "improvements," particularly in the following areas:

• **Small airports.** The National Aviation Trades Association says too much of the federal-aid money has been going to major airports. Outlays for non-airline-type airports should be doubled—to 30% of the total airport aid program. The organization says single hard-surface strips, 1,800 to 3,000 ft in length, are especially needed.

Similarly, the Aircraft Owners and Pilots Association asks that 25% of the funds allocated to each state be designated for small airport projects.

Although Senator Monroney is sympathetic to such pleas, it is doubtful the bill will be so amended. The measure already contains provisions for allocating federal funds for periodic maintenance of both flexible and rigid pavements at small airports.

• **Terminal facilities.** Mayor Hartsfield urged the Senate subcommittee eliminate a provision of the Monroney bill excluding use of federal funds for airport parking lots or concession areas in terminals.

The Administration would even go further, allowing federal funds for runways, taxiways, aprons and tower facilities, but withholding them for any facilities "beyond the gate."

The Air Transport Association also argues that public waiting rooms, public toilets and facilities for checking in passengers and baggage are as necessary to the traveling public as runways.

Senate enactment of the Monroney bill is expected by February 1. House leaders also promise to speed the bill's passage, although the $75-million contingency fund may not survive House examination.

The big question is whether President Eisenhower will veto. Some Democrats almost welcome a veto as a chance to demonstrate their power to override.

New Budget: Corps Construction Hits New High

Corps of Engineers Projects

(over $7 million)

	Fiscal Years (in thousands) 1959	1960
Navigation		
Great Lakes Connecting Channels, Mich.	$24.0	$23.0
Delaware River	11.9	13.8
Locks and Dams		
Jackson Lock and Dam, Ala.	5.4	8.3
Illinois Waterway, Ill.	7.6	9.1
New Cumberland Locks and Dams, Ohio and W. Va.	9.2	7.0
Markland Lock and Dam, Ind., Ky. and Ohio	8.8	13.1
Greenup Locks and Dams, Ky. and Ohio	11.4	11.5
Lock and Dam 41, Ky. and Ind.	6.0	10.5
New Richmond Locks and Dam, Ky. and Ohio	3.7	9.4
Flood Control Projects		
Los Angeles County Drainage Area, Calif.	16.7	19.5
Central and Southern Florida	6.0	9.2
Reservoirs		
Terminus Reservoir, Calif.	4.9	7.3
Tuttle Creek Reservoir, Kans.	15.3	18.8
Keystone Reservoir, Okla.	8.7	18.5
Ologah Reservoir, Okla.	12.8	13.4
Multiple-Purpose Projects, Including Power		
Walter F. George Lock and Dam, Ala. and Ga.	10.4	15.5
Greers Ferry Reservoir, Ark.	4.3	11.3
Hartwell Reservoir, Ga. and S. C.	14.0	26.9
Fort Peck Dam, Mont. (2nd power plant)	6.0	8.3
Eufaula Reservoir, Okla.	8.0	13.9
Cougar Reservoir, Ore.	5.7	9.7
Hills Creek Reservoir, Ore.	10.7	9.8
John Day Lock and Dam, Ore. and Wash.	7.3	20.3
The Dalles Lock and Dam, Ore. and Wash.	12.5	7.1
Oahe Reservoir, S. Dak.	33.5	43.5
Ice Harbor Lock and Dam, Wash.	19.1	33.5

Bureau of Reclamation Projects

(over $2 million)

Boulder Canyon, Ariz., Nev.	$376	$2,900
Central Valley, Calif.	44,600	42,500
Collbran, Colo.	3,971	4,500
Fort Peck, Mont., N. D.	2,059	2,902
Washita Basin, Okla.	8,004	10,100
Crooked River, Ore.	2,043	2,833
Rogue River Basin, Talent Div., Ore.	8,348	2,748
San Angelo, Tex.	610	4,000
Weber Basin, Utah	5,790	5,835
Columbia Basin (irrigation), Wash.	10,917	8,000
Missouri Basin, Webster Unit, Kans.	1,294	3,115
Missouri Basin, Helena Valley Unit, Mont.	2,555	2,182
Missouri Basin, Bostwick Div., Neb., Kans.	1,882	2 338
Missouri Basin, Farwell Unit, Neb.	795	3,000
Missouri Basin, Frenchman-Cambridge Division, Neb.	3,600	4,076
Missouri Basin, Glendo Unit, Wyo.	11,296	2,118
Glen Canyon, Ariz.	47,595	47,367
Flaming Gorge, Utah	10,652	13,000
Navaho, N. M.	7,540	9,945
Paonia Project, Colo.	1,026	3,185

Construction spending on major projects accounts for a good chunk of budget expenditures to be made by the Corps of Engineers and Bureau of Reclamation during fiscal year 1960, starting July 1.

Total Corps construction spending for civil works is budgeted at $711 million, the highest figure in history. The projects listed will take a sizable share of the total construction outlay.

But these jobs each one budgeted for $7 million or more of Army outlays during the year include none of the big new starts for which Congress appropriated fiscal 1959 funds.

The projects authorized last year will not be under contract soon enough to require $7 million worth of spending during fiscal 1960. The appropriations were pushed through at the tail end of the 1958 session, money did not become available until September, and technical details had to be worked out before advertising for bids.

Notable among these large new projects absent from the list are the $129 million flood protection job at St. Louis, the $98 million Pike Island Locks and Dam on the Ohio River in Ohio and West Virginia, the $47 million Beaver Reservoir on the White River in Arkansas and the $32 million John Redmond (formerly Strawn) Dam in Kansas.

Even on a full two-year basis, the programed spending for these projects up to the end of fiscal 1960 amounts to only $5.8 million for St. Louis, $2.6 million for Big Bend, $4.4 million for Pike Island, $705,000 in 1959 and nothing in 1960 for Beaver and $1.8 million for John Redmond. These figures include the portion of the 1959 starting fund scheduled to be spent before June 30.

For reclamation, budgeted construction spending in 1960 totals $198 million, down 8% from the $214 million estimated for the current year. Listed reclamation projects that are slated to spend more than $2 million next year account for the bulk of the 1960 total. In fact, five going jobs budgeted for $10 million to $47 million each will use up $123 million of the $198 million allotted for expenditure next year.

Congress last year voted starting money to begin construction of 10 new reclamation projects. Four of them are of fair size in the $10-million range.

Two of these larger new projects—Ainsworth and Farwell appear in the appended reclamation list of jobs that will get $2 million or more next year.

Labor Bill's Off to Poor Start

- **Labor Secretary Mitchell says any anti-racketeering bill must also tighten the controversial Taft-Hartley Act.**
- **Senator Kennedy says, "Let's first stop racketeering" without getting sidetracked by Taft-Hartley; that can come later.**

The stage is set for a repeat performance of last year's Kennedy-Ives labor reform bill debacle.

Last week Sen. John F. Kennedy (D., Mass.) introduced S. 505—the Labor-Management Reform Bill of 1959.

Like its predecessor, however, the bill is complete with a Title VI that contains a number of Taft-Hartley amendments. These include legalization of the pre-hire contract for construction unions, changes in the definition of "supervisor" and an attempt to reduce the jurisdictional "no-man's land."

The battle lines will be drawn this week when Senator Kennedy's Senate Labor Subcommittee begins hearings on the bill and on a counter proposal, opposed by organized labor, that the Administration is submitting.

House Labor Committee Chairman Graham Barden, due to follow with hearings shortly, predicts a "strong reform bill" will come out of his committee.

The big question is this: What will such a bill contain when reported out of committee? Perhaps labor reform provisions only; perhaps a package deal of reform and Taft-Hartley amendments; perhaps nothing.

• The conflicts—The Kennedy bill contains two important changes in Taft-Hartley tied to the anti-racketeering measure that the craft unions have long been lobbying for. But from the Republican side of Congress come two other amendments that the unions are resisting with equal determination.

Last week Labor Secretary Mitchell warned that "any bill that purports to be an anti-racketeering bill has to contain provisions tightening" Taft-Hartley rules. He spoke out in advance of the Eisenhower Administration's reform proposals, which center on new curbs against secondary boycotts and "blackmail picketing."

Countering the Republican position is the bill introduced by Senator Kennedy, who argues: "Let us first stop racketeering without becoming bogged down in the heated and complex issues raised by the entire Taft-Hartley Act." He promised his subcommittee would offer a full "Taft-Hartley" bill later—after reform is out of the way.

What's happening amounts to a series of efforts to tag some long-sought, controversial changes in the labor-management law to the high-riding, anti-racketeering issue. But Republicans and Democrats are split almost down the middle on which changes should be made in Taft-Hartley.

Nobody in Congress is betting that any over-all Taft-Hartley legislation will be voted in this year's Congress—it's still too hot a subject. So both sides are maneuvering to get their Taft-Hartley changes into the reform bill. So embroiled is the issue becoming that all amendments may be lost.

The first indication of this came last week when Sen. Sam Ervin (D., N. C.) joined Senator Kennedy in co-sponsoring S. 505. The Kennedy bill contains some softening amendments sought by labor, including several proposed by the building trades. And Senator Ervin says he doesn't like the idea.

• Comparing the bills—On several Taft-Hartley points, the White House labor bill is expected to look like the Kennedy version. They coincide on these proposals:

- Allow economic strikers to vote in a representation election.
- Allow contractors and unions to make agreements without the union's majority status determined in advance. And permit such contracts to contain a union shop clause that would become effective in seven days instead of the current 30 days. (This is the pre-hire contract.)
- Authorize employer payments to union apprenticeship and training programs.

But here the agreement stops. In a bill to be introduced by Sen. Barry Goldwater (R., Ariz.), the Administration demands:

- A ban on "blackmail" picketing (where a union pickets an employer in an attempt to organize workers who have already rejected the union).
- A ban on "hot cargo" contracts (where the union pressures a neutral employer to support it in a dispute with another employer).
- The states be given authority to handle labor disputes turned down by the National Labor Relations Board.

Opposing this is the Kennedy bill. Apart from the Taft-Hartley changes that coincide with the White House version, the Kennedy measure includes:

- A reverse proposal on eliminating the "no-man's land" of labor cases by requiring the NLRB to take all cases in its jurisdiction.
- A ban on "shakedown" picketing that is restricted to a union's attempt to get an employer to "buy off" a union official.

Lined up right behind Senator Kennedy is the AFL-CIO—and particularly its Building Trades Department, which has been pushing the easing of Taft-Hartley rules in construction.

• Afraid of boycotts—What the department also had hoped for was a proposal offered by the Eisenhower Administration last year to allow picketing at a construction site, which Taft-Hartley currently bans as a secondary boycott.

However, attempts to persuade Senator Kennedy to include this were rejected with the argument that going into secondary boycotts would mean taking on the Administration's toughening proposal at the same time.

And Senator Ervin, in seeking to eliminate all Taft-Hartley provisions, commented: "When you get into secondary boycotts, you get into the principle that the best way to kill legislation is to load it up with too many provisions."

While the AFL-CIO unions are back

ing the Kennedy version, business groups are lining up behind the White House anti-racketeering and Taft-Hartley program.

In the beginning of the debate that lies ahead, both sides will attempt some Taft-Hartley changes—Senator Kennedy through proposals softening restrictions on labor, the Mitchell-Goldwater team through proposals that would add to these curbs on boycotts and picketing.

Walking this thin legislative line may prove too risky. All Taft-Hartley proposals may be killed and a new reform bill written that deals strictly with new federal curbs on union finances, officers and union procedures.

But for the time being, the Taft-Hartley construction industry amendments are riding along with reform legislation. And at the outset, the urge to reform may carry along some of these amendments—at least the prospects are better than usual.

Homebuilders Seek Lower Costs

If the homebuilding industry is going to fulfill the dream of home ownership for more and more Americans, it must find ways to increase labor efficiency and to reduce on-site labor costs.

That was the dominant labor relations theme at the 15th Annual Convention of the National Association of Home Builders held in Chicago last week (see p. 21).

Homebuilders, traditionally plagued by money problems and particularly sensitive to labor costs and labor strife, were urged to tackle the problem on two fronts—effective legislative activity and serious labor relations work at the local level.

The association called for the help of all members in opposing weakening amendments to the Taft-Hartley Act and in supporting federal legislation that will remove some of the legal immunities now enjoyed by labor.

And union homebuilders were urged to perfect their organization for collective bargaining purposes, to resist restrictive union practices, minimize direct labor costs through every means at their command, and not to surrender to illegal labor demands.

• **Legislation**—The legislative stand was taken only a few days before Sen. John F. Kennedy (D., Mass.) reversed his 1959 version of a labor reform bill (see p. 79). It is another indication of the likely employer resistance to any package (reform and Taft-Hartley).

Specifically, NAHB is opposing any Taft-Hartley amendments that would:

• Permit prehire labor contracts. This has long been sought by the AFL-CIO building trades and is one of Senator Kennedy's proposals.

• Permit the certification of construction unions without a National Labor Relations Board election.

• Reduce the 30-day union shop to seven days. This is another Kennedy proposal and would apply to the building trades only.

• Weaken the protection now afforded against secondary boycotts in the construction industry.

NAHB also has pledged its support of legislative proposals that would more nearly equate the legal liabilities of business and labor. Examples it mentions are anti-trust legislation and laws that curb political activities.

All of these recommendations relate, in one way or another, to better balancing the rights of management and labor—or at least to preventing a greater imbalance.

• **Local-level activity**—The same concern pervaded most of the convention talk about local-level labor relations activity, despite the fact that only about half of NAHB's 41,000 members are union builders.

Labor relations problems that seem to be giving homebuilders their biggest headaches are union restrictions on the use of various products, featherbedding or make-work practices, secondary boycotts and collective bargaining.

These general recommendations for local homebuilder associations emerged from a convention discussion group on labor problems:

• Organize an effective labor committee.

• Analyze and study your labor problems and engage in long-range planning.

• Know your legal rights and don't surrender them.

• Avoid secrecy and discuss your labor problems with the union.

• Be "legalistic" in your approach to labor only as a last resort.

In addition to these, NAHB itself suggested another approach to the problem of reducing labor costs. This involves new ways and means to avoid work stoppages and strikes. To this end, it pledged its support to all efforts designed "to resolve labor disputes by peaceful means, such as voluntary arbitration and grievance procedures."

(Labor continued on page 82)

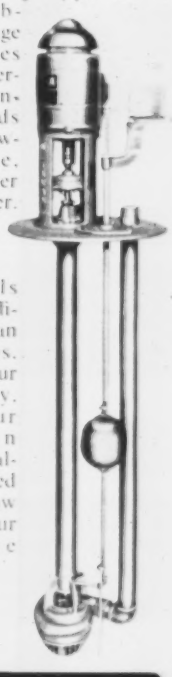
the latest word in dependability

WEINMAN

sump pumps

A unique advantage of Weinman sump pumps is their long, trouble-free life and low original cost. This combination of dependable performance and reasonable purchase price gives you the most efficient answer to handling drainage water, pumping liquids carrying small, non-fibrous trash and prevention of sump flooding. You don't have to take our word for it. The proof is in the impressive number of installations where Weinman Type GA-VS pumps are specified.

Take the word of other engineers who have found the dependability of Weinman pumps assures low maintenance costs with little or no downtime. For example, the Weinman non-clog Type U-VS vertical submerged sewage ejector gives lowest cost performance handling liquids containing sewage, sludge, trash and other foreign matter.



Free, informative bulletins give details about these efficient Weinman sump pumps. Write for your copies today. Or, see your Weinman Pump Specialist. He's listed in the Yellow Pages of your telephone directory.

WEINMAN PUMP

290 Spruce Street Columbus 8, Ohio

CENTRIFUGAL SPECIALISTS

Unity Progress

UAW and building trades negotiate jurisdiction

Efforts to solve the jurisdictional conflict between AFL-CIO craft and industrial unions are making considerable progress. And the threat of a split over the issue in the merged federation appears to have been removed—at least temporarily.

One indication that the tension has eased came from Detroit last week, where the Detroit Building Trades Council and the United Auto Workers Union have buried the hatchet. They have come up with what they call a "sensible and workable" agreement defining and controlling their respective rights to industrial construction work.

At the same time, the jurisdictional settlement machinery agreed on at the national level in Miami last year is reportedly yielding satisfactory solutions to many of the craft-industrial union disputes that have piled up for consideration by the AFL-CIO.

As a result, it looks as if the mid-winter meetings of the building trades unions and of the AFL-CIO Executive Council will not be dragged into a fight over the principle of construction by contract. The first of these meetings is under way in Miami Beach this week.

• **Detroit pact**—The Detroit agreement, which is a mutual-aid pact as well as a jurisdictional agreement, follows the basic jurisdictional principles laid down in the Miami agreement.

Those principles say production and maintenance work belong to UAW members and new construction belongs to building tradesmen. Jobs that fall between these two areas will be decided on the basis of past practices.

The jurisdictional rights of the two groups are specifically spelled out with respect to the following types of work: new buildings on new plant sites; new buildings on existing plant sites; complete remodeling of existing buildings on unrelated existing plant sites; and complete remodeling of existing buildings on existing plant sites, where no production has recently been performed. In these cases, as a general rule, the work belongs to the building trades.

However, where the work involves complete remodeling of buildings under production or the rearrangement of equipment or machinery in buildings under production, the work can be done by either group, depending on past practice.

The agreement becomes effective March 1.

OFFICIAL PROPOSALS

Bids: February 12, 26, 1959.

Baldwin Municipal Authority Allegheny County, Pennsylvania Sewage Collection Project

Sealed Proposals will be received at the office of the Municipal Authority of the Borough of Baldwin, Allegheny County, Pennsylvania, in the Baldwin Borough Municipal Building, 3344 Churchview Avenue, Pittsburgh 27, Pennsylvania, until 8:00 P.M. Eastern Standard Time on two (2) dates, February 12, 1959 for the construction of a portion of a Sewage Collection System as follows:

Contract I
Parts A and B
16,300 Lin. Ft. — 8" to 10" Sewers

Contract II
Part C
14,300 Lin. Ft. — 8" to 10" Sewers

Contract III
Parts D and E
14,000 Lin. Ft. — 8" to 10" Sewers

and on February 26, 1959 for the construction of the remaining portion of the Sewage Collection System and a Glass Run Interceptor Sewer as follows:

Contract IV
Parts F and G
15,600 Lin. Ft. — 8" to 10" Sewers

Contract V
Parts H, I, J, and K
21,500 Lin. Ft. — 8" to 10" Sewers

Contract VI (Glass Run Interceptor Sewer)
Part L
8,500 Lin. Ft. — 8" to 21" Sewers

all in accordance with Contract Plans and Contract Documents which are on file at the Offices of Lorenzi, Dodds and Gunnill, Consulting Engineers, 1406 Berger Building, Pittsburgh 19, Pennsylvania. Immediately after each closing time for receipt of bids, the Authority Board will convene a meeting at the Municipal Building, where bids will be publicly opened and read aloud. A Bid Bond or certified check, executed by the bidder, payable to the Municipal Authority of the Borough of Baldwin, in an amount equal to Ten Percent (10%) of the bid, shall be submitted with each bid.

Copies of the Contract Documents may be obtained at the Offices of the Engineers, 1406 Berger Building, Pittsburgh 19, Pennsylvania.

A deposit of one hundred dollars ($100.00) will be required on each set of Contract Documents taken. (Set No. 1 Contracts I, II, III; Set No. 2 Contracts IV, V, VI), which will be refunded on receipt of a bona fide bid and return of drawings and specifications in good order. Make all checks payable to the Municipal Authority of the Borough of Baldwin. Only fifty dollars ($50.00) will be refunded to those who return the drawings and specifications in good order within thirty (30) days after the last bidding date, but do not submit a formal bid.

The Baldwin Municipal Authority reserves the right to reject any and all Bids.

Dated the 22nd day of January, 1959.

THE MUNICIPAL AUTHORITY OF THE BOROUGH OF BALDWIN
ALLEGHENY COUNTY, PENNSYLVANIA
Emma Bray, Secretary

Bids: February 13, 1959

Contract No. 14

DELAWARE RIVER PORT AUTHORITY
Administration Building
Camden, New Jersey

PAINTING THE WALT WHITMAN BRIDGE OVER THE DELAWARE RIVER CONNECTING PHILADELPHIA, PENNSYLVANIA AND CAMDEN COUNTY, NEW JERSEY

Sealed bids will be received for Painting the Walt Whitman Bridge over the Delaware River connecting Philadelphia, Pennsylvania, and Camden County, New Jersey, known as Contract No. 14 at the office of the Executive Director of the Delaware River Port Authority, Administration Building, Bridge Plaza, Camden, New Jersey, until 2:00 P. M., Eastern Standard Time, February 13, 1959, at which place and time they will be publicly opened and read by the Authority.

A more complete description of the work and full information for bidders are given in the Contract Documents and Specifications for this Contract, which may be obtained upon the deposit of $10.00 which will be remitted upon the receipt of bid or the return in good condition of the copies so taken within thirty days after the opening of bids.

Each proposal must be accompanied by a certified or cashier's check in the sum of $25,000 payable to the Delaware River Port Authority and drawn upon a National or State Bank or Trust Company having an office or place of business either in Philadelphia, Pennsylvania, or Camden, New Jersey, and must not be enclosed with the sealed bid. The surety's consent must be shown. The bidder to whom the contract is awarded will be required to furnish a Performance and Labor and Materialmen's Bond in the sum of 100 percent.

The Authority will afford prospective bidders an opportunity to inspect the site of the work. The bidder shall submit along with his proposal a list of successfully completed contracts of comparable size.

The Authority reserves the right to waive any informalities in the bids received; to reject any or all bids, and to award the contract only to those experienced in this class of work and to the bidder whose proposal is deemed by the Authority to be most advantageous to the public interest.

DELAWARE RIVER PORT AUTHORITY
JOSEPH K. COSTELLO
Executive Director

Bids: February 24, 1959

Power Authority of the State of New York

For the Furnishing and Delivery of Draft Tube Gates for Tuscarora Power Plant
Specifications No. PA-X-23023
Niagara Contract No. NP37

NOTICE TO CONTRACTORS: The POWER AUTHORITY OF THE STATE OF NEW YORK will receive sealed proposals for the furnishing and delivery thereof f.o.b. destination, Niagara Falls, Niagara County, New York, of the draft tube gates for the Tuscarora Power Plant until 10:30 A.M., Eastern Standard Time on the 24th day of February, 1959, at the Authority's Office, 18th Floor, The Coliseum Tower, 10 Columbus Circle, New York 19, New York, at which time and place proposals will be publicly opened and read aloud.

The work consists of fabricating, furnishing and delivery thereof of approximately 528 tons of structural steel draft tube gates for the Tuscarora Power Plant.

Delivery of the above items will be required beginning April 1, 1960.

Plans, Specifications and Proposal Forms for the work may be obtained from the Power Authority of the State of New York at the Coliseum Tower, 18th Floor, 10 Columbus Circle, New York 19, New York, upon application and prepayment of a fee of Ten Dollars ($10.00) per initial set of contract documents, and Five Dollars ($5.00) per set for additional sets, no part of which will be refunded. Plans, Specifications and Proposal Forms for the work will be on file in the Authority's office, 18th Floor, The Coliseum Tower, 10 Columbus Circle, New York 19, New York, and in the office of the Engineer, Uhl, Hall & Rich, 230 Congress Street, Boston 10, Massachusetts, and may be inspected by prospective bidders during office hours.

Bids must be made and returned in duplicate in accordance with instructions contained in the Information for Bidders. Guarantee (certified check or bid bond) will be required with each bid in an amount not less than 20 percent of the gross sum bid.

The right is reserved to reject any or all bids.

W. S. Chapin
General Manager

OFFICIAL PROPOSAL

RATE: $2.40 per line (or fraction) per insertion.

CLOSING DATE: 10:30 a.m. Friday for issue out following Thursday.

SEND COPY: Official Proposal Division, Engineering News-Record, P. O. Box 12, New York 36, N. Y.

OFFICIAL PROPOSALS

RATE: The rate for Official Proposal advertising is $2.40 per line or fraction set solid. Where the advertisement is set other than solid, the space is measured by total space occupied and charged on basis of 12 lines to the inch.

CLOSING DATE: Friday 10:30 A.M. for issue dated the following Thursday.

SEND COPY TO: Official Proposal Division, Engineering News-Record Class. Adv. Div., P. O. Box 12, N. Y. 36, N. Y.

Bids: February 18, 1959.

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS ALBANY, N. Y.—Pursuant to the provisions of the Highway Law and special provisions for projects financed with Federal Aid Funds, sealed proposals will be received until ten-thirty o'clock A. M., eastern standard time on the 18th day of February 1959, by Henry A. Cohen, Director, Bureau of Contracts, 12th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 1: G. L. Nickerson, District Engineer, 152 Broadway, Albany 1, New York						
Schenectady	FAAS 56-1	Princetown Church Road, Pt. 2 and Dave Road, Pt. 1 Proj. S-8(5)2	3.86	Bit. Double Surf. Treat. on 3.81 Mi.; Misc. Work on 0.02 Mi.	$22,000 Plans $5	$100,000
Warren (Rte. 9L)	BC 56-7	Glens Falls East Lake George, Pt. 1, SH 1066		Roadside Development	$800 Plans $5	11,800
Washington (Rte. 22)	FABC 56-6	White Creek County Line, SH 721, Shunpike, SH 97 Proj. F-32(6)7	4.53	Asphalt Concrete Widen Exist. 21' Conc. Slab Bridge; Widen Exist. 3 Sp. 31' Bridge with Pre-Cast Beams	$15,000 Plans $5	71,300
DISTRICT No. 2: Lacy Ketchum, District Engineer, 300 No. Genesee Street, Utica 1, New York						
Herkimer	FASS 56-3	Stone Road, Co. Rd. 111 Proj. S-353(3)	2.72	Bit. Double Surf. Treat. Pavt.	$19,000 Plans $5	43,200
Madison	FASS 56-4P	Stockbridge Falls-Morrisville, Pt. 1 and Pt. 2 Co. Rd. 1 Proj. S-20(2)	7.61	Bit. Double Surf. Treat. Pavt.	$13,000 Plans $5	213,000
DISTRICT No. 3: R. E. Penny, District Engineer, Barge Canal Terminal, Rochester 1, New York						
Monroe	FAC 56-1	Rochester City Inner Loop, Water St. to Scio St. Proj. F-(1006)10	1.06	Drainage Tunnel & Rock	$82,000 Plans $5	1,187,000
Orleans	FASS 56-2	West Lee Street Road, Co. Rd. 94, East Lee Street Road, Co. Rd. 30A and 30 Proj. S-212(3)	3.77	Double Surf. Treat. Bit. Mac. on 3.69 Mi. Misc. Work on 0.08 Mi.	$13,000 Plans $5	232,000
DISTRICT No. 6: James H. Thomas, District Engineer, State Office Bldg., 30 West Main Street, Hornell, New York						
Chemung	FASS 56-5	Big Flats-South, Corning Co. Rd. 10 Proj. S-325(3)	0.42	Bit. Double Surf. Treat. Pavt. on 0.41 Mi. Asphalt Conc. Ty. 2B on 0.11 Mi. Conc. Wall, Plate Girder Br. 5 Sps. 62'6" Each	$28,000 Plans $5	511,000
Steuben (Rte. 15)	FABC 56-9	Bath-Avoca, SH 5204, Bath Village, SH 5550 Proj. F-225(14)	1.60	Asphalt Concrete Pavement	$57,000 Plans $5	1,005,000
DISTRICT No. 8: Kent G. Rayer, District Engineer, Pleasant Valley Road, Poughkeepsie, New York						
Orange (Rte. 17)	FABC 56-8	Tuxedo-Harriman Pt. 1, SH 5258 Proj. F-065(6)	2.85	Asphalt Concrete Pavement	$18,000 Plans $5	245,000
Orange and Sullivan (Rte. 17)	FATS 56-1	SH 5(4)5, SH 54(6), SH 53(7), SH 1329, SH 1(3), SH 67-11, SH 5290 and SH 5516 Proj. F-006(6), F-065(11)	27.98	Furnishing and Erecting Traffic Signal Installations	$11,000 Plans $5	200,000
DISTRICT No. 9: Joseph C. Fetterick, District Engineer, 71 Frederick Street, Binghamton, New York						
Broome (Rte. 17)	BC 56-5	Windsor-Deposit, SH 5258, Br. No. 2		Cleaning and Painting Thru Truss Bridge	$1,000 Plans $5	13,000
DISTRICT No. 10: M. F. Gary, District Engineer, 45 W. Main street, Babylon, L. I., New York						
Queens The Tour (Rte. 495)	FBCL 56-1	Interstate Route Connection No. 512, Clearview Expressway to Van Wyck Expressway, Contract No. 2	1.52 1.90 Addl.	8" Conc. Conc. Pavt. 2 @ 36' Wide on 3.32 Mi.; Misc. Work on 0.20 Mi. Addl. on 3.91 Mi. Asp. Conc. and 0.09 Mi. Conc. Conc. Pavt. 4 Hy. Sign Conn. W.I. Beams 2 Sp. @ 113'6", 2 Sp. @ 111'6" 2 Sp. @ 115'8" and 3 Sp. @ 108'6" 1 RR Sp. Weld W.I. Plate Girder 1 Sp. @ 200'5", 2 Ped. Overpass W.I. Beams 5 Sp. @ 221'2" and 1 Sp. @ 217'4"	$400,000 Plans $10	10,750,000

Any projects in this letting that involve the Federal Aid highway systems are subject to the provisions of the Federal Aid Highway Act of 1956, being Public Law 627, 84th Congress, approved June 29, 1956, and are also subject to the applicable New York State statutes.

In compliance with the provisions of Section 220 of Title 23 of the United States Code and Section 220 of the Highway Law, the minimum wages to be paid laborers, workmen and mechanics employed in work on highways that are set out in the bid proposal.

Maps, plans, specifications, bid proposals and forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts, Albany, N. Y., and at the offices of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of the set, in good condition, within 30 days of award, or rejection of bid; refund for all other sets in good condition, within said period, will be 50% of deposit.

Special attention of bidders is called to "Information for Bidders" in the Public Works Specifications, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum specified in the advertisement and the bid proposal. The retention and disposal of the bidding check, the execution of the contract and bond shall conform to the provisions of the Highway Law, as set forth in "Information for Bidders."

The right is reserved to reject any or all bids.

HERBERT M. MORGAN
SUPT. OF PUBLIC WORKS

Read the Official Proposal Columns of

ENGINEERING NEWS-RECORD

This Week and Every Week

OFFICIAL PROPOSALS

Bids: February 3, 1959

Allegheny County, Penna. County Department of Aviation

Pittsburgh, Pa., January 2nd, 1959.

Separate and sealed proposals will be received at the Office of the County Controller of Allegheny County, Room 104 Court House, Pittsburgh, Pa., until 10:30 o'clock A.M. Eastern Standard Time, TUESDAY, February 3rd, 1959, and will be opened and read by the County Commissioners in the Gold Room, Room 410 Court House, Pittsburgh, Pa., one-half hour later, 11:00 o'clock A.M. Eastern Standard Time, for the following:

CONTRACT NO. S-J
GRADING & DRAINAGE OF EAST-WEST PARALLEL RUNWAY TAXIWAY "N" AND "Z" GRADING, DRAINAGE & PAVING OF RELOCATED MOON CLINTON ROAD CONNECTING ROAD AND HANGAR SERVICE ROAD—
GREATER PITTSBURGH AIRPORT
CONTRACT NO. S-L
CONSTRUCTION OF UNDERPASS AT INTERSECTION OF TAXIWAY "N" AND HANGAR SERVICE ROAD
GREATER PITTSBURGH AIRPORT

The minimum wage rates permissible on this project shall be in accordance with the schedule of minimum rates set up in the Contract Documents.

No Bidder may withdraw his bid for a period of sixty (60) days after the scheduled closing time for receipt of Bids.

Specifications, Form of Contract, Instructions to Bidders, Proposals and Blue Print Copies of Letting Plans may be viewed at the Office of the Commissioners of Allegheny County.

Copies of the above data for use of Bidders will be furnished upon application to the Contract Clerk, in the County Department of Works of Allegheny County, Room 502 County Office Building, Pittsburgh, Pa.

A charge of $2.00 will be made for each set of Standard Contract Specifications.

A charge of $25.00 will be made for each set of Plans & Specifications for CONTRACT NO. S-J.

A charge of $5.00 will be made for each set of Plans and Specifications for CONTRACT NO. S-L.

There will be no refund on the Standard Contract Specifications or Plans and Specifications.

Check or Money Order to cover Specifications to be made out to the "COUNTY OF ALLEGHENY".

Proposals must be accompanied by a Certified Check or Surety Company Bond (on County's Form) to the order of or running to the County of Allegheny for the amount fixed in the Instructions to Bidders as evidence that the Bidder will accept and carry out the conditions of the Contract in case of award.

The County Commissioners reserve the right to reject any and all Bids.

JAMES W. KNOX, CONTROLLER,
COUNTY OF ALLEGHENY.

Bids: March 2, 1959

Chicago, Burlington & Quincy Railroad Company

Railroad Bridges

The Chicago, Burlington & Quincy Railroad Company, E. J. Brown, Chief Engineer, is taking bids due on March 2, 1959 at 12:00 noon, CST, for the construction of the substructures for the following three railroad bridges at Quincy, Illinois:

1. Mississippi River Bridge No. 262.44-33 piers, 2 abutments. Principal construction quantities: 21,600 cu. yd. excavation, 26,400 cu. yd. concrete, driving 56,400 lin. ft. steel piles, 222,000 lbs. reinforcing steel.
2. Quincy Bay Bridge No. 261.57 - 6 piers, 2 abutments. Principal construction quantities: 5,800 cu. yd. excavation, 3,960 cu. yd. concrete, driving 17,700 lin. ft. steel piles, 97,000 lbs. reinforcing steel.
3. State Aid Route 27 Bridge No. 261.26 - 2 piers, 2 abutments. Principal construction quantities: 920 cu. yd. excavation, 825 cu. yd. concrete, driving 570 lin. ft. steel piles, 43,500 lb. reinforcing steel.

Steel piles will be furnished by the Railroad. Separate bids will be taken for each of these bridges. Bids may be bested.

Plans and specifications may be obtained at the office of the Chief Engineer, Room 1501, 547 West Jackson Blvd., Chicago 6, Ill., upon payment of $25.00 per set which is refundable.

OFFICIAL PROPOSALS

Bids: February 17, 1959

Contract NYA-650.073

THE PORT OF NEW YORK AUTHORITY
NEW YORK INTERNATIONAL AIRPORT
INTERNATIONAL ARRIVAL AND
AIRLINE WING BUILDINGS
SCREEN WALLS AND PAVING

Sealed proposals for the construction of screen walls, paving and utilities for the service courts at the International Arrival and Airline Wing Buildings at New York International Airport will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on Tuesday, February 17, 1959, at which time said proposals will be opened and read in Room 1105.

Contract documents may be seen at the office of the Assistant Chief Engineer for Design of the Authority, Room 1115. Documents will be furnished upon deposit of $30.00 per set for not more than three sets to any one company (each set including one copy of the contract drawings). Additional sets will be furnished upon payment of $30.00 per set, which payment is not refundable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt will be issued. The receipt shall be delivered to Room 1115, where the documents will be furnished.

Those who have submitted a bid on the contract directly to the Authority will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Donald V. Lowe, Chairman

New York, January 29, 1959

Bids: February 24, 1959

Stream Control Works Contract 460

SEALED BIDS will be received by the Board of Water Supply, at its offices, thirteenth floor, 120 Wall Street, New York City, until 11:00 A.M., Eastern Standard Time, on Tuesday, February 24, 1959, for Contract 460, for the construction of the stream control works and portions of the release water structures for the proposed Catmonsville dam. The stream control works will consist of an inlet structure, a diversion conduit, about 1280 feet long and 17 feet 6 inches in diameter, with a transition at each end; and a stilling pool. The portions of the release water structures to be constructed under this contract will consist of a portion of the emergency gate tower, the release water conduit and the substructure for the release water chamber. The release water conduit, about 590 feet long, will be a 12-foot diameter steel pipe, lined with cement mortar, encased in concrete and constructed on top of the diversion conduit. All work shall be as set forth in the specifications.

No bid will be received and deposited unless accompanied by a certified check upon a National or State bank, drawn and made payable to the order of the Comptroller of The City of New York, in the amount of one hundred thousand dollars ($100,000.00), for the proper execution of the Contract.

Pamphlets containing information for bidders, forms of bid and contract, specifications, contract drawings, requirements as to surety, etc., can be obtained in the Secretary's office, Room 1312, at the above address, upon application in person or by mail, by depositing the sum of $5.00 for each pamphlet. Within 30 days following the award of contract or rejection of bids the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of $4.00 will be made for each other pamphlet returned in acceptable condition. Arrangements will be made whereby prospective bidders desiring blueprints of the contract drawings for their own use may secure same, the cost thereof to be paid by them. For further particulars apply at the office of the Chief Engineer at the above address.

ARTHUR C. FORD, President, EDWARD C. MAGUIRE, HERBERT M. ROSENBERG, Commissioners, Board of Water Supply. BETTY COHEN, Acting Secretary.

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-51443) will be received at Casper, Wyoming, until 10 a.m. Mountain Standard Time, March 10, 1959, for furnishing labor and materials for completion of Fremont Canyon Power Plant, Glendo Unit, Wyoming, Missouri River Basin Project. Location approximately 40 miles southwest of Casper, Wyoming. Principal items are: 1,700 cu. yds. second stage concrete in power plant; 138,000 lbs. furnishing and placing reinforcement bars; 70,000 pounds furnishing and installing miscellaneous metalwork. Lump sum—installing and testing two 32,500 horsepower hydraulic turbines; 60,000 lbs. furnishing and installing metal pipe, fittings and valves; and other work. Completion time 360 days. For particulars address Bureau of Reclamation, Building 46, Denver Federal Center, Denver 2, Colorado; P. O. Box 280, Casper, Wyoming; or Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

EMPLOYMENT OPPORTUNITIES

Send NEW Ads and Inquiries to Classified Advertising Division of
ENGINEERING NEWS-RECORD,
P. O. Box 12, N. Y. 36.

ADDRESS BOX NO. REPLIES TO: Box No., Classified Adv. Div. of this publication, Send to office nearest you.
NEW YORK 36: P. O. BOX 12
CHICAGO 11: 520 N. Michigan Ave.
SAN FRANCISCO 4: 68 Post St.

• POSITIONS VACANT

Wanted: Chief Estimator. Judicious Buyer. Graduate Civil Engineer. Proven Ability. Willing to assume responsibility. Salary and participation. Send Complete resume, salary expected. Executive Offices, Delaware Valley. P-9647, Engineering News-Record.

Estimator—General Contractor—Experienced Commercial, Industrial Buildings—Locate in Jacksonville, Florida—Send resume stating experience and salary requirements. P-9684, Engineering News-Record.

Wanted: Concrete Paving Foreman. At least 5 years experience in highway or airport paving. Location—Ohio. P-9691, Engineering News-Record.

Experienced Asphalt Supt.—must know late model Cedarapids batch plant, be cost conscience and a good pusher—a good job for the right man. P-9754, Engineering News-Record.

Experienced Gravel Production Boss—must know dry-pit production and equipment and be able to prospect and produce to state specs. P-9761, Engineering News-Record.

Civil Engineer—Registered professional engineer with experience in municipal street and sewer design. Beginning annual salary approximately $7,075.00 with increase at the end of the first six months. Annual 5% increase each year for the next three years to a final annual salary after three and one half years of approximately $8,110.00. Normal fringe benefits. Submit resume and references to Director of Public Service, City of Middletown, Ohio, P. O. Box 530.

Chief Estimator: experienced in heavy and highway construction. Immediate and permanent position available with medium sized progressive organization located in middle West. P-9747, Engineering News-Record.

Senior Civil Engineer (Airport Development) wanted by New York State Department of Commerce. Salary Range $7,500 to $9,090. Civil Service examination to be held March 14, 1959. Write to NYS Department of Civil Service, Albany 1, N. Y. before February 13 for detailed announcement and application forms.

Design Engineers: Graduate Civil Engineers to do detailed design work involving street paving, storm sewer and sanitary sewer projects. Sanitary Sewer projects to be given major emphasis. Application Should Be Made, Giving Minimum Salary, to Department of Personnel, Springfield, Missouri.

(Continued on page 86)

Employment Opportunity

Nationally known midwest testing and research organization has openings for unusual personnel as follows:

1. Bituminous Engineer—experienced in mix design, inspection and control of construction with extensive laboratory experience and research accomplishments. The number and context of published work is extremely important.

2. Concrete Engineer—experienced in mix design, inspection and control of regular and lightweight concrete for normal and prestressed members. Must also have thorough knowledge of chemistry of cements and geology including ability to make petrographic studies. Research experience and publications important.

3. Laboratory Chief Technician must be fast and accurate on all tests required on construction materials. Thorough understanding of test methods in soils, concrete and asphalt including ability to design and build test apparatus required for special research problems.

• • • •

Your present position will be protected. Send complete resumé, including snapshot and salary requirements.

P-9238, Engineering News-Record
330 N. Michigan Ave., Chicago 11, Ill.

ENGINEERS

PERMANENT OPENINGS FOR QUALIFIED MEN EXPERIENCED IN THE DESIGN OR SPECIFICATIONS FOR

AIRPORTS
BRIDGES
BUILDINGS
HIGHWAYS
RAILROADS

PREFER GRADUATE REGISTERED ENGINEERS WHO SEEK LONG RANGE EMPLOYMENT WITH AMPLE OPPORTUNITY FOR PROFESSIONAL DEVELOPMENT AND ADVANCEMENT IN A STEADILY EXPANDING AND GROWING ORGANIZATION.

Paid vacation, sick leave, holiday, overtime. Excellent Employee Benefits Plan provides retirement income plus life and disability insurance. Blue Cross Moving allowance.

Work will be in the general offices in St. Louis. Interviews can be arranged in Washington, D. C., and San Francisco also.

Please write fully, including salary data, to

SVERDRUP & PARCEL ENGINEERING CO.
ENGINEERS — ARCHITECTS
915 Olive St. Louis 1, Mo.

WANTED
APPLICATIONS FROM
ENGINEERING
PERSONNEL

HIGHWAYS
BRIDGES
ARCHITECTURAL

Openings in Pennsylvania, Ohio, Maryland, West Virginia & Mississippi

DESIGNERS
DRAFTSMEN
FIELD ENGINEERS
INSPECTORS
CHIEFS OF PARTY
INSTRUMENTMEN

Career opportunities for individuals interested in professional recognition, ample opportunity for advancement based on merit, plus employee retirement plan, group life insurance, hospitalization, paid vacation and holidays.

EXPERIENCE REQUIRED

Mail Resume to Personnel Department

MICHAEL BAKER, JR., INC.
CONSULTING ENGINEERS

Baker Building
Rochester, Pennsylvania
or
Northside Station, Box 9997
Jackson 6, Mississippi

RESIDENT ENGINEER

To supervise construction of 122 kilometer highway in Iraq. Fifteen years experience required. Excellent salary plus furnished house free for self and family. Approximately two to two and one half years term. Please send complete resume and specify salary required.

HARZA ENGINEERING COMPANY
400 W. Madison St., Chicago 6

MECHANICAL ENGINEER

Graduation from a four year college or university with major course work in mechanical engineering possession of a license as a mechanical engineer as issued by the State of Connecticut or any other state in which the standards for registration are not lower than those of Connecticut. Salary $6136 $7436 per annum.

Complete details by writing to
Director of Personnel,
Municipal Building, Hartford, Conn.

CIVIL *Engineers*

Work and live in wonderful WISCONSIN

A rapidly expanding highway program offers:

Permanent civil service positions
Rapid advancement Challenging work

Starting salary based on experience
Civil engineering degree or professional registration required.

Write to: **R. F. Milhaupt**
Personnel Officer
State Highway Commission of Wisconsin
State Office Building
Madison 2, Wisconsin

EMPLOYMENT OPPORTUNITIES

DISPLAYED RATE:
The advertising rate is $39.20 per in. for all adv. appearing on other than a contract basis. Frequency rates quoted on request.

An advertising inch is measured 7/8" vertically on a column—3 columns—30 inches to a page.

UNDISPLAYED RATE:
$2.40 per line, min. 3 lines. To figure advance payment count 5 aver. words as a line.
Position Wanted ads take 1/2 of above rate.
Box numbers—count as 1 line.
Discount of 10% if full payment is made in advance for 4 consecutive insertions.

SHORING and SCAFFOLDING

SALES MANAGER

National manufacturer (AAA-1) is looking for a Sales Manager to handle sales of its Shoring and Scaffolding Division. Position offers a real opportunity for the man who is experienced in the field and wants to become a permanent member of an aggressive, growing organization. Compensation commensurate with the job, with additional pension, profit-sharing, and insurance benefits. Give full details of background, experience, earnings and other qualifications as basis for personal interview. Our organization knows of this advertisement and all inquiries will be acknowledged.

P-9731, Engineering News-Record
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

CHIEF ESTIMATOR

TOP QUALITY MAN WANTED TO ASSUME FULL RESPONSIBILITY OF ESTIMATING, EXPEDITING, AND RELATED WORK FOR LARGE AND GROWING CHICAGO AREA GENERAL CONTRACTOR. Salary open. Send complete resume: education, experience in office and field, types and sizes of projects handled.

P-9741 Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

TOWNSHIP MANAGER
WANTED

Township of Teaneck, N. J. Population 40,000. Salary open. Selection to be made on basis of executive and administrative qualifications with special reference to training and experience. Engineering background desirable. Submit complete record and indicate availability to Township Clerk.

Miss Clara Christensen,
Town Hall, Teaneck, N. J.

STRUCTURAL ENGINEER

Graduation from a four year college or university with major course work in structural engineering plus 3 years experience. Salary $6136-$7436 per annum.

Complete details by writing to
Director of Personnel,
Municipal Building, Hartford, Conn.

ESTIMATOR

Expanding construction firm interested in employing an estimator with experience and background in diversified estimating. Will qualify him for immediate position as Assistant to Chief Estimator. Civil Engineer graduate preferred. Our company provides many benefits for the right person.

ROSCOE-AJAX CONSTRUCTION CO., INC.
1107 - 19th St., N.W., Washington, D. C.

Hydro Engineers

Interesting positions for CE's with 5-10 years' hydro experience including field studies involving dam sites, and plant locations; hydro studies; economic analysis; specification preparation on hydro plants; and improvement of existing facilities.

These positions are based in our NY Headquarters but will involve field trips to Latin America.

Knowledge of Spanish desirable but not essential.

Salary commensurate with past experience.

Send resume in complete confidence to:

Director of Employment
Ebasco International Corporation

AMERICAN & FOREIGN
POWER COMPANY, INC.
100 Church St.
New York 7, N. Y.

MECHANICAL ENGINEER

Major Foreign Operating Oil Company offers career opportunity for graduate mechanical engineer. Initial assignment in our New York Office.

To conduct equipment evaluation, technical service on mechanical equipment used in oil refineries and cross country pipelines, pressure vessel designing, etc.

Salary commensurate with experience. Write outlining personal history and work experience—please include telephone number to:

P-9743, Engineering News-Record
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

HIGHWAY ENGINEERS
BRIDGE ENGINEERS
SANITARY ENGINEERS
DESIGNERS & DRAFTSMEN

Send Resume to
WIGHT AND COMPANY
Consulting Engineers
1038 Curtiss Street Downers Grove, Illinois

• *POSITIONS VACANT*
(Continued from page 84)

Civil Engineer Wanted By Western Illinois County, for survey, design, and construction of county highways. Under graduates with experience considered. Permanent with automatic advancement, paid vacation, sick leave, holidays, excellent retirement. State education, background, experience and salary desired. P-9712, Engineering News-Record.

Working foreman, engineer 30-50 yrs. old. Sewer, water lines, treatment plant, and concrete and highway for field. Must have 10 yrs. experience. Send resume to P-9811, Engineering News-Record.

Chief Tunnel Inspector—Minimum of 10 years experience on large tunnel projects. Must assume full responsibility for the inspection of a large tunnel drain project. Send complete resume to Daniel W. Barry, Oakland County Drain Commissioner, 550 S. Telegraph Road, Pontiac, Michigan.

Wanted—Town Engineer by the Town of Waterford, Connecticut, population approximately 16,000. Please send complete resume and salary desired in first letter. Apply to Mr. William L. Darrow, First Selectman, Town of Waterford, Waterford, Connecticut.

Experienced Estimator for firm engaged in general construction of commercial and industrial buildings. Pleasant Central Pennsylvania city. Permanent position, salary commensurate with experience and ability; good opportunity for right man. Send complete resume to P-9779, Engineering News-Record.

• *SELLING OPPORTUNITIES OFFERED*

Ohio, Mich., Ontario, N. Y. We do drafting, design overflow work from large engineering firms & plants. Refinery, chemical, power, atomic plants. Steel mills, marine etc. AC-2-2761, Drafting & Designing Co., 14812 Detroit, Cleveland 7, Ohio.

Wanted—salesman for tractor and earth moving machinery with caterpillar dealer. Gulf Coast area. Experience in this field necessary. Excellent potentials. Our salesmen know of this ad. All replies held in confidence. SW-9795, Engineering News-Record.

• *EMPLOYMENT SERVICE*

Better Positions—$6,000 to $35,000. Want a substantial salary increase, more opportunity or different location? This national 48 year old service connects you with best openings. You pay us only nominal fee for negotiations: This we refund when employer pays placement fee. Present position protected. In complete confidence, write for particulars. R. W. Bixby, Inc., 559 Brisbane Bldg., Buffalo, N. Y.

• *POSITIONS WANTED*

Engineer—BSCE—35—Over 10 years experience in materials and soils, supervision of construction on dams, highways and tool roads. Prefers permanent position in Mid-west or West. PW-9619, Engineering News-Record.

Construction Executive. Wide experience in general contracting field as supt., construction manager. Proven record as a producer with top grade contractors. PW-9608, Engineering News-Record.

Construction Mgr. Proven capability. $35,000.00 minimum. Available immediately. PW-9618, Engineering News-Record.

Construction Supt. Top level only. Available immediately. PW-9613, Engineering News-Record.

Sales Engineer; B.S. Architectural Engn.— 3 yrs. structural steel detailing & estimating —3 yrs design, production & sales promotion of precast concrete products; seeks sales engineering position in south or west. PW-9602, Engineering News-Record.

Equipment Superintendent for all types of earthmoving equipment. Thoroughly experienced in preventive maintenance, purchasing and labor relations. Age 35 will relocate. Excellent references. PW-9678, Engineering News-Record.

(Continued on opposite page)

• POSITIONS WANTED

(Continued from opposite page)

Proj. Mgr., Const. Supt., Spec. Writer. 30 yrs. varied CE experience. PW-9644, Engineering News-Record.

Registered highway engineer, land surveyor. 30 years experience. Engineer or construction superintendent, highways, bridges, sewers. PW-9657, Engineering News-Record.

Equipment Superintendent: Seven foreign completed contracts. Available February. PW-9583, Engineering News-Record.

Engineer & Architects—Representative S.E. or S.W. Area. P.O. Box 53-296 Miami Shores, Fla.

Construction Engineer 36, thirteen years ex-perience with consultants and contractors as superintendent of construction and also project engineer, State Highways, Bridges, water and sewage works, and power plants. PW-9622, Engineering News-Record.

Superintendent-Estimator—Piping & Mechan-ical Specialist. 18 Years Refinery, Powerhouse, Steel Mill, Etc. All Phases Estimate To Completion. Resume On Request. PW-9699, Engineering News-Record.

Project Manager Foreign Heavy Construction. Graduate Professional Engineer with extensive experience Latin America, available for long or short assignment or consultation. PW-9729, Engineering News-Record.

Construction Manager. Architect-Engineers. Owners Representative. Age 47, P.E., 30 years experience all types of construction. Previous background Manager, Chief Engineer, General Superintendent, Chief estimator. Since 1955 have had responsible supervision and field management of thirty-million dollars worth of work. Now on East Coast. Will relocate. PW-9715, Engineering News-Record.

General Supt. 40 years old. 18 yrs. as supt. Just a yrs. as general supt. heavy, highway and airport construction. Qualified references. Available March 1st. PW-9709, Engineering News-Record.

Sanitary Engineer. B.S.C.E., P.E., 8 years ex-perience. Resume on request. PW-9710, Engineering News-Record.

Project Manager or General Superintendent— Completing 3 million dollar pier at Grt. Lakes, 25 years experience, pile driving, cofferdams, caissons, piers, docks, underpinning, heavy concrete and timber work, underwater construction. Estimate, design, negotiate and supervise. Best of references. Foreign work preferred. PW-9705, Engineering News-Record.

Construction or Gen. Supt. 25 years experi-ence in industrial, bridge, water and sewerage plant construction. Presently living in Ohio. Will relocate. Resume available. PW-9703, Engineering News-Record.

Executive, until recently General Manager for successful New York General Contractor, solicits inquiries from Contractors requiring top man with thorough experience, qualified to assume full responsibility. Minimum $20,000. PW-9701, Engineering News-Record.

Canadian, aged 41, married, no children, in-terested in administrative or personnel duties, preferably abroad. Served 10 years as Commissioned Officer with Royal Canadian Air Force attached to Royal Air Force for operational duties. 20 years varied experience in administrative and personnel fields including senior appointments in the Service. Employed by Aluminium Group since early 1950 and held positions with this organization in French West Africa (construction), British Guiana (operations) and Jamaica. Currently employed by Aluminium Group in Jamaica on construction project. Due to slow down of expansion programme will be available for new assignment late Spring early Summer 1959. Willing to go anywhere at short notice, provided salary and conditions employment satisfactory. PW-9805, Engineering News-Record.

Librarian—7 yrs. experience—four as engi-neering librarian. PW-9808, Engineering News-Record.

Electrical Construction Superintendent, 46. 28 yrs. experience, 5 yrs. field engineer and design. Heavy, industrial, power house and substation. Complete job, material take-off, expediting, negotiations to final sale. PW-9806, Engineering News-Record.

Sales Engineer, heavy construction equip-ment, fully experienced. Dirt moving, paving, crushing, cranes, etc. Age 37. Seeks sales position with distributor of mfg. USA or overseas. Relocate and travel. PW-9804, Engineering News-Record.

Purchasing Agent, age 38, thirteen years field and home office purchasing and sub-contract negotiating experience with major firm on chemical, industrial and power plant construction. Resume on request. PW-9802, Engineering News-Record.

Foreign Position Wanted. Executive and supervisory construction experience United States and South America. Mass housing, roads, utilities, general construction, production of lumber, concrete blocks, clay products and aggregate. Excellent record as cost conscious producer and ability to deal with all classes of people. PW-9812, Engineering News-Record.

Office Manager-Accountant Main or Field office domestic or foreign. Heavy Const. taxes, payroll cost, timekeeping, Purchasing Insurance Personnel. PW-9769, Engineering News-Record.

Structural Engineering—Languages. Graduate arch. eng., registered structural engineer (Ill.). U. S. citizen, 33, married, 6½ yrs. varied struct. and supers. exp. AMASCE. Foreign languages: German, French, Portuguese, Hungarian, Italian. Other exp.: 3½ yrs. accounting. Wide range of interests. Presently employed. Will relocate. PW-9778, Engineering News-Record.

Civil Engineer. Registered Illinois, Wisconsin. 8 years field and office experience heavy construction including bridges, sewers, industrial and commercial plus 2 years design and land surveying. Age 32. Location open. Available February 15. PW-9776, Engineering News-Record.

Danish Civil Engineer. M.S., ASCE. Associate Professor, age 31, 8 years experience in design of reinforced and prestressed concrete, seeks position in Europe, July 59. PW-9762, Engineering News-Record.

Safety Director. 18 years experience in all types construction. Interested in permanent position. Free to relocate on reasonable notice. PW-9800, Engineering News-Record.

General Superintendent, 31, with carpentry background, able to organize and administer complete project from bid to completion, desires position with aggressive Chicago area contractor. PW-9787, Engineering News-Record.

Estimator—32 yrs. BSCE, desires challenging position with gen'l contractor in heavy industrial and commercial construction. PW-9752, Engineering News-Record.

Ambitious Engineer, 33. Civil Graduate, speaks Spanish, French. Seeks challenging job with future. Twelve years experience building and refinery construction, sales, top administration, missiles, foreign and domestic. Currently on West Coast but will relocate for right job. Citizen. PW-9801, Engineering News-Record.

Atlanta, Birmingham, Mobile Area: Wish to contact out-of-area Contractor seeking responsible qualified man this area as Manager for present or proposed branch office or similar executive capacity. Broad Building Construction experience, both field and office. Industrial and Government prime lump-sum contracts. Versatile, energetic. Engineering education, presently employed, available 3 months. PW-9798, Engineering News-Record.

Construction General Carpenter Foreman or Super. 25 years expr. in heavy construction presently employed, worked 14 years for same company. PW-9775, Engineering News-Record.

Construction Supt. Sewer and Water Lines— 23 years experience—can get job done, and make money. PW-9766, Engineering News-Record.

Desires Job Overseas. Operating Engineer, Mechanical Work, ten years experience South, Latin America. Available now, 34 years age, P. O. Box 162, Durand, Michigan.

SEARCHLIGHT SECTION

CLASSIFIED ADVERTISING

BUSINESS OPPORTUNITIES - EQUIPMENT - USED or RESALE

DISPLAYED RATES

The advertising rate is $25.50 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.

AN ADVERTISING INCH is measured 7/8 inch vert. on one col., 3 columns—30 in. to a page.

EQUIPMENT WANTED or FOR SALE ADVERTISEMENTS acceptable only in Displayed Style.

UNDISPLAYED RATES

$2.40 a line, min. 3 lines. To figure advance payment count 5 average words as a line.

BOX NUMBERS count as one additional line in undisplayed ads.

DISCOUNT OF 10% if full payment is made in advance for four consecutive insertions of undisplayed ads.

• SPECIAL SERVICE

Arch. & Struct. Drafting. Bar detailing. Misc. Iron & Steel. Water, sewage. Industrials. Prompt service. P. O. Box 810, Glenwood Landing, L. I., N. Y.

• BUSINESS OPPORTUNITY

Wanted Construction Co. interested in Florida office. Contact G.M.C. Lucas, 2225 Westeria St., Sarasota, Florida. Phone Ringling 7-9813.

• WANTED

Anything within reason that is wanted in the field served by Engineering News-Record can be quickly located through bringing it to the attention of thousands of men whose interest is assured because this is the business paper they read.

SALES REPRESENTATIVE

Attn: Manufacturers in Water and Sewage Field. Desire energetic and effective representation? California Corporation seeks additional products. Presently covering entire West Coast.

RA-7942, Engineering News-Record
68 Post St., San Francisco 4, Calif.

STRUCTURAL ENGINEERING
ARCHITECTURAL ENGINEERING

OUR COURSES of instruction by mail HAVE HELPED THOUSANDS to better positions and to pass State Board Examinations. Forty-eighth year.

Write today — Without obligation

WILSON Engineering Corp.

College House Offices HARVARD SQ., CAMBRIDGE, MASS.

TWO—600 cfm AIR COMPRESSORS

Ingersoll Rand Model DR 600, 100 psi, Diesel powered, skid mounted.

PURCHASED NEW IN 1956
Used Less Than 1200 Hrs.

Located at Newark Airport, Newark, N. J. To be sold "as is and where is". Bids are due on or before 3 P. M. EST., Monday, February 16, 1959.

For bid papers write or phone

The Port of New York Authority
Purchase & Administrative Services Dept.
111-8th Avenue, New York 11, N. Y.
Tel.: ALgonquin 5-1000, Ext. 206

WANT TO BUY

CORPORATION ENGAGED IN HEAVY CONSTRUCTION

that has several million dollars useable tax loss

BO-9566 Engineering News-Record
Class Adv. Dept., P. O. Box 12, N. Y. 36, N. Y.

FORSYTHE EQUIPMENT CO., INC.

MANITOWOC SPEEDCRANES

RENTALS

Capacities to 70 Tons
Booms to 140 ft. and 30 ft. jibs
Special rates on long rentals

Exeter 2-6125 37-11 Vernon Blvd.
Long Island City 1, New York

FOR SALE OR RENT

30 TON BROWNING DIESEL LOCO. CRANE
80 TON GE DIESEL ELEC. LOCO. NEW 1950
65 TON WHITCOMB DIESEL ELEC. LOCO.
44 TON GEN. ELEC. DIESEL ELEC. LOCO.
25 TON WHITCOMB DIESEL ELEC. LOCO. 1948
50 TON AMER. GUY DERRICK, 115' MAST, 100' BM.
90 HP LIDGERWOOD 2D DIESEL HOIST W/-SWINGER
2½ YD. LINK-BELT K-595 DIESEL CRANE, 120' BM.
110 HP CLAYTON PORT. STEAM GENERATOR

Also Other Constr. & Ry. Equip.

WHISLER EQUIPMENT CO.
1905 Railway Exchange Bldg., St. Louis 1, Mo.
CHestnut 1-4474

Need A "Lift"?

CRANES, INC.

RENTALS

Manitowoc 3900's — Crawlers 3500's

Latest Models
Long Booms and Jibs

TRUCK CRANES

Link Belt and Bay City. Cap. to 35 Tons.
Booms to 150 ft. Hoists-Welders-Generators

Maspeth 78, N. Y. ST 4-1776

LOCOMOTIVES & LOCOMOTIVE CRANES

1—25 Ton Diesel Electric Locomotive
1—45 Ton G. E. Diesel Electric Locomotive
1—25 Ton Ohio Diesel Locomotive Crane
1—30 Ton Browning Diesel Locomotive Crane
1—25 Ton Bay City 190T61 Truck Crane

B. M. WEISS COMPANY
Girard Trust Bldg. Philadelphia 2, Pa.

LOW COST INSTALLATION AND OPERATION

CABLEWAYS
IMMEDIATE SHIPMENT
ELECTRIC, STEAM OR DIESEL
CAPACITIES 5 TO 20 TONS
SELL, RENT OR BUY

FOR DAMS, BRIDGES, BREAKWATERS, FILTRATION AND SEWERAGE PLANTS

FOR SPEED, ECONOMY, EFFICIENCY, FLOOD SAFETY, LABOR REDUCTION

AMBURSEN DAM CO. INC.
295 MADISON AVE. NEW YORK

PUMPCRETE

Current Models Sale or Rent
Engineering Service & Parts
R. T. SHERROD
Concrete Equipment Company
Jones Island, Milwaukee 7, Wis.

PILING

SURPLUS NEW and USED — For Sale, Wanted or Rent

JUST COMPLETED

FULL REVOLVING FLOATING CRANE "HARBOLD"

capacity 65 tons at 50' radius
boom 125' long
steam power, air controls
4 drum hoist
barge 110 x 48 x 8

FOR SALE, IMMEDIATE DELIVERY

HAVRE DE GRACE SHIPYARD, INC.
Havre De Grace, Maryland

We do a Nation-wide business in

STEEL SHEET PILING

IMMEDIATE SHIPMENT

815 pcs. 75 to 30 ft. Beth. SP-6a—New York
100 pcs. 62 ft. Beth. ZP-32—Connecticut
103 pcs. 60 ft. MZ-27—Tennessee
150 pcs. 60 ft. SP-4—W. Virginia
290 pcs. 60 to 30 ft. M-16 & M-115—Tennessee
370 pcs. 60 to 30 ft. M-115 & M-116—Indiana
150 pcs. 34-30 ft. M-116—Michigan
81 pcs. 25 ft. M-115—Mississippi
220 pcs. 15 ft. M-115—Missouri
Other lengths and sections at various locations. Storage yards at CHICAGO, BUFFALO & MEMPHIS.
Also 10" x 42# and 12" x 53# BP 60' in stock.

PILE DRIVING EQUIPMENT

VULCAN AND McKIERNAN-TERRY PILE HAMMERS & EXTRACTORS
All Sizes—For Rent & Sale—Immediate Shipment

MISSISSIPPI VALLEY EQUIPMENT CO.
1908 Railway Exchange Bldg.
St. Louis 1, Mo. CHestnut 1-4474

HY DRACHMAN STEEL CORP.
STRUCTURAL STEEL

The Contractors Steel Supply House
52-25 2nd St., Long Island City, N. Y.
RAvenswood 9-1262

STEEL IS OUR BUSINESS

FOR SALE

ORTON LOCOMOTIVE CRANE

Excellent condition 40-50 ton capacity.
D-17000 Cat Diesel 65' boom.
Located in Jacksonville, Florida.
Call Adams 3-4870 in Savannah, Georgia

When you need
PILING . . . fast

use this section, as many contractors do, as a piling buying directory. It can save you time when you want to know, quickly, where to buy good new or used piling.

STEEL SHEET PILING

AVAILABLE FOR PROMPT SHIPMENT

Pcs.	Section	Length	Location
200	MP-116	50 to 60'	Kansas City
200	MP-115	50 to 60'	Kansas City
150	MP-112	50 to 60'	Chicago
450	MP-116	35 to 60'	Chicago
175	MP-115	50 to 60'	Chicago
180	MP-112	19 to 20'	Nebraska
1300	SP-6a	15 to 47'	New York

CONMACO, INC.
PHONE DRexel 1-3930
804 KANSAS AVE., KANSAS CITY, KANSAS

RAILS-TIES

TRACK ACCESSORIES
NEW and RELAYING

H & STEEL SHEET PILING

3700 PCS. BETH. SP6A, 65' 50' 36' & 15' & 40'
450—PCS. MP112—12' 25' 35' 40' & 60'
117 PCS. BETH.—AP3 25 & 30, 40 & 60 FT.
790 PCS. BETH.—DP2—31' 35' 40' 50' 60'
1200 PCS. ZP38-ZP32—25' 36' 50-60' & 65'
1300 PCS. BP10-BP12—BP14—55' to 60'
112—8"—3000 15'—92 pcs 20' Corrugated

PILING BOUGHT—SOLD—RENTED
STOCKS: N. Y.—BOSTON—BUFFALO
MONTREAL—BALTIMORE—JACKSONVILLE
CLEVELAND—RICHMOND—NEW ORLEANS

DIESEL LOCOMOTIVE
12—Gen Elec. 100, 80, 65, 45 & 25 ton
5—Plymouth 10, 20 & 45 ton

5—AMER. GANTRY WHIRLEY CRANES
5—25R—165' Boom—20R—139' Boom
1 Clyde 11S 100 Steam 28 Ton 100' Boom

R. C. STANHOPE, INC.
60 E. 42nd St. N. Y. 17, N. Y.
Telephone MU-2-3075

STEEL SHEET PILING

LARSSEN and ROMBAS Sections

STOCKS AVAILABLE IN:
- Linden, New Jersey
- Ft. Lauderdale, Florida
- Houston, Texas

WESTERN SERVICES CORPORATION
601 E. Linden Ave., Linden, N. J.
MArket 4-4000 HUnter 6-4000

In Florida Call: Port Everglades Steel Co. Ft. Lauderdale—JA. 1-6545
In Houston Call: G. Oliver—CA. 4-7234

RAILROAD Cross and Switch **TIES**

Promptly from adequate stocks
NEW and USED *(as available)*
GILLIS & COMPANY
134 Breckenridge Lane Louisville 7, Ky.

SAVE ON YOUR TRACK CHAINS ROLLERS SPROCKETS IDLERS, ETC.
for Caterpillar—International—Allis Chalmers
BRAND NEW—GUARANTEED
SEABOARD EQUIPMENT CO., INC.
161-10B Jamaica Ave., Jamaica 32, N. Y.
AX 7-4422

CRANES FOR RENT

CRAWLERS — Capacities to 60 tons, Booms to 180 ft.
TRUCK CRANES — Capacities to 35 tons, Booms to 130 ft.

P and H, Lima and Manitowoc.
Top-Condition erection cranes

ROGER SHERMAN
CRANE SERVICE, INC.
East Hartford, Connecticut JAckson 8-4106

FOR SALE—SAUERMAN 2 CU. YD. SLACKLINE DRAGLINE
FOR SAND AND GRAVEL PRODUCTION AND GENERAL EXCAVATION

With standard Sauerman 150 hp. 2-drum variable speed hoist, with 2-cu. yd. bucket and steel mast. Used on one job only.

AMBURSEN DAM COMPANY, INC.
295 Madison Avenue New York 17, N. Y.
Murray Hill 5-7757

SURVEYING INSTRUMENTS
USED • REBUILT • SALE
RENT • REPAIRING

TRANSITS & LEVELS
Various Makes
NEW & REBUILT

Fully equipped modern shops — all makes and models repaired — all work guaranteed prompt service — complete line field supplies

INSTRUMENTS RENTED

Midwest Representatives: W. & L. E. Gurley, Distributors—Filotenica Salmoraghi

NATIONAL BLUE PRINT CO.
Established 1914
210 S. Canal St. Chicago (6), Ill.

TRANSITS AND LEVELS

New or Rebuilt
Sale or Rent

Headquarters for REPAIRS — any make — Factory Service. We will also buy your old instruments or take them in trade.

A complete line of Engineering Instruments and equipment for field or office. Write for catalog NLR 91

WARREN-KNIGHT CO.
Manufacturers of Transits and Levels
136 No. 12th St., Philadelphia 7, Penna.

ALL MAKES
RE-BUILT
REPAIRS
RENT
REAL EXPERTS
BUFF

59 Dey St., New York WOrth 2-2797

UNUSED! BEST ALL-AROUND MATERIAL-HANDLING CRANE!
FOR SALE OR RENT!

Less Than ½ Original Price! Guaranteed Factory-New Performance! Subject to Approval!

INTERNATIONAL T-9 TRACTOR
WITH TRACKSON SWING CRANE

Tops in power . . . strength . . . versatility! Designed and constructed to withstand rough usage with a minimum of maintenance. Operates smoothly and easily with maximum safety to driver. CAPACITY 7000-8000 lbs. BOOM SWING 280°.

For specifications, prices, delivery—write, wire or phone collect.

MEMPHIS EQUIPMENT Company
ARMY TRUCKS • PARTS
CONSTRUCTION EQUIPMENT

MAIN OFFICE • 766 SO. THIRD ST. MEMPHIS, TENNESSEE
ALLEGHENY BRANCH • 821 LINCOLN WAY WEST CHAMBERSBURG, PENNSYLVANIA

FORK LIFT TRUCKS
FOR SALE
4—American Road, Road Econmobiles Model 600T, with 4' Tower. Excellent Condition (USED)
$3,500.00 F.O.B. BOSTON
LEE EQUIPMENT CORP.
33 Island St. Boston 19, Mass.
Tel. Highlands 5-6590

FOR SALE
13x13 Hvy Duty Airport Paving Forms
w keyway, dbl stake pkts, dowel holes. Available 1/1/59. Approx. 400 10' sects.
GILBANE BUILDING CO.
Jamaica 30, N. Y. Tel. OL 6-6090

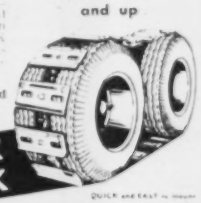
PIPE
Surplus New & Used
FOR SALE

CONTRACTORS TRUCKERS DRILLERS CRANE OPERATORS
READY-MIX TRUCKERS LOGGERS MINE OWNERS PIPE LAYERS

CONVERT YOUR Rubber-Tire EQUIPMENT
to CRAWLER PERFORMANCE
Save 50%—ACT NOW!

MUD SAND SNOW SWAMPS won't stop you! Flotation is increased, Steering and Traction are at TRUCK TRACK fits small as well as large tire sizes.

$200.00 and up



Durable Drop Forged Steel Construction Interchangeable

TRUCK TRACK

QUICK and EASY to install

Send for Literature and FREE ESTIMATE

TRUCK TRACK SALES COMPANY
6112 Broadway Ave. Cleveland 27, Ohio Phone DE 1-7373

Call: HYACINTH 7-4900
PIPE, VALVES & FITTINGS
PILING • CULVERTS
ASBESTOS-CEMENT PIPE • ALUMINUM PIPE
ALBERT PIPE SUPPLY CO., Inc.
103 VARICK AVE., BROOKLYN 37, N.Y.

LOCOMOTIVE CRANE
30 Ton Browning Model MI Locomotive Crane with D-13000 Cat Diesel—55' Boom—Condition Excellent
HENNESSEY-FORRESTAL MACHY. CO.
2323 So. Hanley Rd. St. Louis 17, Mo.

ASSOCIATED PIPE & FITTING CO., INC.

PILING PIPE SHELLS MANDREL FITTINGS	"H" BEARING PILE-SLEEVES AND SHOES	K & M ASBESTOS CEMENT PIPE	CULVERTS CIRCLE ARCH SECTIONAL

262 RUTHERFORD BLVD., CLIFTON, N.J. • PR 3-8400

JOHNSON-KIEWIT
Hudson River Bridge Contractors
FOR SALE
Equipment and forms used on one job only
Purchased 1957

1 Erie Strayer Concrete Plant—5 CY
4 5½ C.Y. Jaeger Transit Mix Trucks
6 N. W. Boom Sections
5 Manitowac Boom Sections
6 Buckets (Concrete Digging)
3 Steam Generators
Pumps Generators
Blaw Knox Steel Forms 280' 9' diameter Pier Cap Forms
Beam Forms

Johnson-Kiewit — W. J. Keahon
347 Madison Ave., N. Y. 17 Mu. 6-1070

PIPE
VALVES and FITTINGS
All Sizes in Stock
NEW-USED
GREENPOINT PIPE SUPPLY CORP.
Bogart and Stagg Streets, Brooklyn, N. Y.

PROFESSIONAL SERVICES

NEW ENGLAND

Metcalf & Eddy

ENGINEERS

Investigations Reports Design
Supervision of Construction
and Operation
Management Valuation Laboratory
1300 Statler Building, Boston 16

MIDDLE ATLANTIC

Airport Fueling Systems, Inc.

Specialists in Liquid Handling Systems

1212—13th Street, N.W.
Washington 6, D. C.

Edwards and Kelcey

Engineers and Consultants

Highways—Structures
Traffic—Parking
Terminal Facilities

3 William St., Newark 2, New Jersey
Boston — Salt Lake City — New York

John Clarkeson

Consulting Engineer

Civil Engineering—Consulting Services
Highways, Airports, Bridges
Surveys, Waterfront Facilities

Room 203, Del & Hudson RR Bldg.
Albany, N. Y.

Empire Soils Investigations, Inc.

Subsurface Investigations and Soil Testing
Overburden and Rock Core Drilling
Auger Test Pits Load Tests
Laboratory Analysis

No. 17 Wall Street Dryden, N. Y.

Howard, Needles, Tammen & Bergendoff

Consulting Engineers
Bridges, Structures, Foundations,
Express Highways
Administrative Services

1805 Grand Ave. 99 Church St
Kansas City, Mo. New York 7, N.Y.

E. Lionel Pavlo

Consulting Engineer

Design, Supervision, Reports
Bridges, Highways, Expressways
Marine Structures, Public Works
Industrial Construction, Airports

642 Fifth Ave. New York 19, N. Y.

King & Gavaris

CONSULTING ENGINEERS

Bridges, Highways, Tunnels
Waterfront Structures, Reports
Investigations, Foundations
Design & Supervision of Construction

425 Lexington Ave. New York 17, N. Y.

Lawrence S. Waterbury

Consulting Engineer

Bowling Green 9-9298
26 Broadway New York 4

D. B. Steinman

Consulting Engineer

BRIDGES
HIGHWAYS

Design, Construction
Strengthening, Investigations,
Reports, Advisory Service

117 Liberty St., New York 6, N. Y.

Severud-Elstad-Krueger-Associates

Consulting Engineers

Structural Design - Supervision
Reports - Buildings - Airports
Special Structures
315 Lexington Ave., New York 17, N.Y.

Lockwood, Kessler & Barlett, Inc.

Engineers *Surveyors*

Civil Engineering Investigations, Reports and Designs, Supervision of Construction, Cadastral, Geodetic, Topographic & Engineering Surveys, Photogrammetric Engineering and Mapping
One Aerial Way Syosset, N. Y.

Modjeski and Masters

Consulting Engineers

Bridges and other Structures
Foundations
Highway and Expressways

309 North Sixth St. Harrisburg, Pa.
Philadelphia Miami New Orleans

Robert W. Lowry, Inc.

Consulting Engineers

Robert W. Lowry M. M. Lepkaluk
Design, Supervision, Reports, Long Span & Movable Bridges, Expressways, Highways, Airports, Prestress Design, Strengthening, Soil Engineering
227 Pine St., Harrisburg, Pa.
New York New Orleans Detroit-Boston

Pennsylvania Drilling Company

Subsurface Explorations, Grouting
Industrial Water Supply
Mineral Prospecting

Large Diameter Drilled Shafts, Reports
1205 Chartiers Ave. Pittsburgh 20, Pa.

Michael Baker, Jr., Inc.

Consulting Engineers; Civil Engineers, Planners & Surveyors; Airports & Highway Design; Water Works & Sewerage Design & Operation; Aerial Topo Maps, Surveys; Reports & Investigations; Irrigation. Home Off.—Rochester, Pa. Br. Off., Jackson, Miss.; Harrisburg, Pa.; College Park, Md.

Sprague & Henwood, Inc.

Drilling Services

Foundation Investigations, Soil Testing & Test Borings; Grout Hole Drilling & Pressure Grouting, Diamond Core Drilling

Main Office

221 W. Olive Street, Scranton, Pa.

Branches:

1009 Western Savings Fund Bldg., Philadelphia, Pa.
11 W. 42nd St., New York, New York
200 Magee Bldg., Pittsburgh, Pa.
575 Linwood Ave., N. E. Atlanta, Ga.
Box 1416, Grand Junction, Colorado
Buchans, Newfoundland

Buchart Engineering Corp.

Consulting Engineers

Highways - Bridges - Sewer Systems
Surveys - Water Works - Dams - Reports
Supervision - Industrial - Municipal Structures

55 S. Richland Ave., York, Pa.
Lancaster, Pa. Washington, D. C.

When you need a SPECIALIST in a hurry . . .

Engineering News-Record's Professional Service Section offers the quickest, most direct method of contacting consultants who may be available NOW.

SOUTH

Dignum and Associates

Consulting Engineers

Civil Electrical
Structural Mechanical

260 Palermo Avenue
Coral Gables 34, Florida

Rader and Associates

Engineers - Architects

Sewage Disposal, Water Works, Ports, Airports, Bridges, Highways, Office and Commercial Buildings, Industrial Plants, Reports, Investigations, Consultations, Aerial Photography, Photogrammetry
111 N.E. 2nd Avenue, Miami 32, Fla.

Mott Core Drilling Company

Core Borings for Buildings, Bridges Foundation Soil Tests, Highways Pressure Grouting, Dams, Mine Shafts Mineral Prospecting

826-846 Eighth Ave. Huntington, W.Va.

MIDDLE WEST

Consoer, Townsend & Associates

Water Supply, Sewerage, Flood Control & Drainage, Bridges, Express Highways, Paving, Power Plants, Appraisals, Reports, Traffic Studies, Airports, Gas & Electric Transmission Lines.
360 East Grand Ave., Chicago 11, Ill.

Roy B. Everson

S.E. Consultant Since 1900

For Purification Systems as applied to Sewage Treatment, Water Works and Swimming Pool Circulating Systems. A New System for Automatic Control
211 W. Huron St. Chicago 10, Ill.
Phone SUperior 7-3339

Vogt, Ivers, Seaman & Assoc.

Engineers-Architects

Highways — Structures — Expressways
Industrial Bldgs. — Harbor Facilities
Airports — Dams — Docks
Surveys — Reports

34 W. Sixth St., Cincinnati 2, O.
20 N. Wacker Dr., Chicago 6, Ill.

Toledo Testing Laboratory

Engineers—Chemists

Concrete — Soils — Asphalt

Inspection Research
Tests Development
Foundation Investigation
Borings — Diamond Drilling — Load Tests
Soils Mechanics Laboratory

1810 North 12th St. Toledo 2, Ohio

Photronix, Inc.

offering an integrated process of
AERIAL PHOTOGRAMMETRY
AND
ELECTRONIC COMPUTATION
For Engineers, By Engineers

790 King Ave. Columbus 12, Ohio

FAR WEST

Woodward-Clyde-Sherard & Assoc.

Consulting Civil Engineers

Soil and Foundation Engineering; Earth Dams; Engineering Geology; Highway and Airport Pavement Design
1150 28th Street, Oakland, California
1240 West Bayaud, Denver, Colorado
310 V.F.W. Bldg., Kansas City, Mo.
4815 Dodge Street, Omaha, Nebraska

C. E. Jacob

Groundwater Consultant

Water Supply, Drainage, Dewatering, Subsidence, Recharging, Salt Water Control, Statistical Hydrology, Digital and Analog Computation
P. O. Box 247 Northridge, Calif.
Cable JACOBWELL Los Angeles

INSPECTION & TEST

The Haller Testing Labs., Inc.

140 Cedar St., N. Y. 6, N. Y.
Testing and Inspection of
Construction Materials for:
Expressways—Airports
Structures—Bridges
Complete Soils Laboratory
Test Borings—Load Tests
Boston, Plainfield, N. J. New Haven

AERIAL SURVEYS

Aerial Map Service Co.

Topographic, Planimetric, Photo Maps for Highways, Mining, Resources, Construction, City Maps, Tax Maps, Photo Geology, Tellurometer Radio Distance Measurements, Triangulation, Electronic Computation.

1016 Madison Ave., Pittsburgh 12, Pa.

American Air Surveys, Inc.

AERIAL TOPOGRAPHIC MAPS &
AERIAL PHOTOS FOR

• Highways • Airports • Power & Pipe Lines • Railroads • Mining • All types construction • Stockpile Inventories

907 Penn Ave. Pittsburgh 22, Pa.
Reps. Chicago, Huntington, W. Va.

Clyde E. Williams & Assoc., Inc.

Aerial Photos - Enlargements
Topographic Maps

At large and particular scales to suit various engineering needs, e. g. Airports, City Sewer & Water, Power & Pipe lines, Reservoirs, Subdivisions, Highways, Bridges & Inventories.
312 W. Colfax Ave. South Bend, Ind.

SUPPLY CONSULTANTS

Evans and Edell, Inc.

Supply Consultants

Purchasing Agents • Exporters • Confirming Agents For Off-Shore and Overseas Contractors Exclusively

Spare Parts Specialists

1470 Broadway
New York 18, N. Y.
LAckawanna 4-0800
CABLE EVDELLMERC

CONSULT THESE SPECIALISTS . . .

when you need professional assistance in solving difficult problems. Their specialized knowledge and broad experience can prove invaluable in saving both time and money for you.

Engineering News-Record invites other consultants to list the special services they offer on these pages. Rates for the Professional Services section are:

	PER WEEK		
	13 times	26 times	52 times
3/4"—$14.35	$13.35	$12.45
1 1/2"—$23.85	$22.30	$21.00

ADVERTISERS IN THIS ISSUE

Aetna Life Affiliated Co. 37
Allis Chalmers Mfg. Co. Const. Mach. Div. 5-6; 14-15; 72-73
Aluminum Company of America 33
American Bitumuls & Asphalt Co. 49
American Marietta Co. 45
American Mutual Liability Ins. Co. 46-47

Bay City Shovels, Inc. 18, 75
Bell Bottom Foundation Co. 91
Bethlehem Steel Co. 1
Blaw Knox Co. Constru. Equip. Div. 10
Bruning 12
A.-M. Byers Company 50-51-53-55-57-58

Chicago Pneumatic Tool Co. 64-65
Commercial Shearing & Stamping Co. 59

F. W. Dodge Corp. 34
Richard Dudgeon, Inc. 91
Du Pont De Nemours, Film Dept. 54

Electro Data, Div. of Burroughs Corp. 11

L. B. Foster Co. 2

Gahagan Dredging Corp. 91
B. F. Goodrich Company, Aviation Products Div. 67
Griffin Wellpoint Corp. 43
Gunite Concrete and Construction Co. 36
W. & L. E. Gurley 32

B. M. Heede, Inc. 43
Hendrix 13

Ideco Joint Pipe Co. 35

Macomber, Inc. 4
R. C. Mahon Co. 8
Manitowoc Shipbuilding, Inc. 36
Maxon Construction Co. 41
Mayo Tunnel & Mine Equipment 36
Mueller Co. 69

Peerless Pump Div. Food Mchy. & Chem. Corp. 56
Pressrite-Keystone Engineering Prods. Co. 9

Rust-Oleum Corporation 63

Sheffield Corp. Div. Armco Steel Corp. 60
Spencer, White & Prentis, Inc. 36
John W. Stang Corp. 7

Timber Structures 40
Timken Roller Bearing Co. 4th Cov.
Travelers Ins. Co. 3rd Cov.

U S Rubber Co. 20
Universal Sewer Pipe Corp. 3

Vulcan Materials Co. 2nd Cov.

Weinman Pump Mfg. Co. 81
Williams Equip. & Supply Co. 43

Professional Services 90

CLASSIFIED ADVERTISING
F. J. Eberle, Business Mgr.

Employment Opportunities 84, 85, 86, 87
Notices
Proposals 82-84
Equipment
(Used or Surplus)
(For Rent, Sales Wanted) 87, 88, 89

ENGINEERING NEWS-RECORD
330 West 42 St., New York 36—LOngacre 4-3000
ABP Member ABC

Number of copies of this issue printed 83,486

D. S. ROBERTSON, Advertising Sales Manager
HUGH J. CARLSON, Assistant Business Manager

ADVERTISING REPRESENTATIVES
Atlanta, 3—Rhodes-Haverty Bldg., Robert H. Powell, Jr.
Chicago, 11—520 No. Michigan Ave., L. H. Hunt, W. G. Payne, J. A. Shipley
Cleveland, 13—1164 Illuminating Bldg., 55 Public Square, F. P. DiToro
Dallas 1—Vaughn Bldg., 1712 Commerce St., Robert T. Wood
Denver, 2—1740 Broadway, J. W. Patten
Detroit, 28—Penobscot Bldg., D. L. Kates, R. I. Mace
Los Angeles, 17—1125 W. Sixth St., Knox Bourne, S. S. Tiebout
New York, 2—500 5th Ave., C. D. Neulen, H. T. Olsen, J. C. White
Philadelphia, 3—Six Penn Center Plaza, D. G. Jensen
Pittsburgh, 22—1111 Oliver Bldg., M. Russell
St. Louis, 8—Continental Bldg., E. B. Mingle, Jr.
San Francisco, 4—68 Post St., J. W. Otterson, R. C. Alcorn

OTHER SALES OFFICES:
Boston 16—350 Park Square Bldg.
Great Britain—E. E. Schirmer, McGraw-Hill House, 95 Farringdon St., London, E. C. 4
Europe—Michael R. Zeynel, 15, Landgraf-Wilhelm, Frankfurt/Main, Germany

In the field of
HYDRAULIC DREDGING

GAHAGAN

a leading name for over 50 years

Gahagan Dredging Corporation,
90 Broad St., New York 4, N. Y.
Write, wire or phone Whitehall 3-2558. Cable "Walgahagan".

FOUNDATIONS
DRILLED CASSIONS
BELLED PIERS
BELL BOTTOM
Truck, Crane & Barge Rigs Throughout The U.S.A.
HOUSTON TEXAS 4655 Telephone Rd. OLIVE 4-2629
DALLAS TEXAS 1208 Industrial RIVERSIDE 7-8525
BELL BOTTOM FOUNDATION CO.

DUDGEON HYDRAULIC JACKS
SALES RENTALS
CAPACITY TO 600 TONS
FOR:
PILE TESTING
UNDER-PINNING
BRIDGES
PIPE PUSHING
SOIL TESTING
RICHARD DUDGEON INC.
789 BERGEN ST. - ST 9-4040 - BROOKLYN, N. Y.

How to Spur Homebuilding

THE TWO OMNIBUS HOUSING BILLS introduced to Congress (ENR Jan. 22, p. 109) shy away from a basic problem in the mass housing market: removal of the interest ceiling on FHA and VA-insured mortgages. Instead, stimulation of housing is sought in numerous other ways, including the very questionable one of having the government purchase FHA and VA mortgages at par.

This approach lifted the mass housing market temporarily last year, while the federal money for mortgage purchases lasted. But when all the money was committed, housing began to drop off again (ENR Dec. 11, 1958, p. 111). The same experience is indicated for this year—if this proposal becomes law—and for each year, as long as we use such a crutch for housing.

Mass housing simply cannot grow as fast as the number of potential home buyers qualifying for FHA and VA loans justifies; it cannot attract investment at its present interest limits. Moreover, interest rates in general have resumed their climb in the last few weeks, meaning that FHA and VA mortgages may well be even less attractive during the next few months than they were last fall or last spring. The burden on the Federal National Mortgage Association—to buy FHA and VA paper—will be greater this year than last. With the same amount of funds, Fannie Mae may have to offset a greater "deficit" in private capital interested in government-insured mortgages. The result would be fewer housing starts this year than last financed by government-insured mortgages.

Interest ceilings have been a selling problem in FHA or VA mortgages since 1956. Now, the new rise in borrowing costs is sure to accentuate the problem, for as interest rates rise on competing investments housing loans at limited rates lose their attraction.

It's time to stop hamstringing home buyers and homebuilders, and to give investors a chance to do better than is now possible on FHA and VA mortgages. The new housing legislation under consideration ought to remove the interest rate limits. Then, FNMA purchases of government-insured mortgages at par value could be halted.

Fire Safety Responsibility

AS AN AFTERMATH of the Chicago school fire that took the lives of 93 persons, inspection of schools throughout the country revealed deplorable conditions in a startlingly high percentage of them. The Chicago tragedy could have happened almost anywhere. And there is evidence that similar unsafe conditions exist in hotels, factories, night clubs and many other structures in which the public gathers. Steps should be taken immediately to rectify this dangerous situation.

Sufficient information is available on how to make buildings fire safe. ENR's special report last week (Jan. 22, p. 21), for example, not only summarized the results of the recent school investigations, but also the minimum measures that should be taken for fire safety in schools. More detailed information on preventing loss of life in these and other structures can be obtained from many sources, such as insurance companies, the National Fire Protection Association and local fire departments.

Actually, in most cases, the cost of the added fire protection needed is relatively low. The Chicago tragedy could probably have been prevented for the equivalent of the price of a penny lollypop a day per pupil since the school was built.

Architects and engineers, as well as municipal fire officials and building inspectors, are in a strong position to enforce fire safety. Their recommendations for building-code requirements are respected by lawmaking bodies. Moreover, regardless of legal requirements, they can design for safety against fire just as they do for safety against gravity, wind and seismic loads. And, in the last analysis, they are the ones who have the best opportunity to convince building owners that fire safety is not a frill to be cut out when cost savings are being sought.

Fire safety is such a major responsibility of architects and engineers that they should take the lead in all efforts to assure it. By following good design practices themselves and by using their knowledge and influence to promote sensibly adequate laws, they can be instrumental in avoiding loss of life in building fires.

An Ill Wind

THE NEED TO SPEND BILLIONS for missiles is a distasteful but nevertheless important factor in the construction picture. The story on intercontinental ballistic missiles (p. 30) is, therefore, worth attention. It points out that the Atlas missile will become operational late this year at a base where construction is nearing completion; and that the Titan missile, two years from operational status, awaits construction of four bases, to cost perhaps $100 million each.

Billions will be spent for these Atlas and Titan installations. And then more billions will be required for the Minuteman, which will make the relatively primitive Titan and Atlas obsolete. Of course, such base facilities as dormitories, mess halls, shops and the like may be salvaged, but the expensive launching complexes will of necessity be scrapped, replaced.

ENR's correspondent, Ralph Smith, reporting on this story out of Omaha (SAC headquarters), sums it up this way: "As a taxpayer, this (spending) is a dismal prospect. But as a free American interested in staying free, what else can be done?" Indeed, what else.

Builder Tully's words of wisdom

1.

"I've been a builder forty years," Phil Tully told his boy,
"I'm giving you my company, my greatest pride and joy."
Now, sound advice was also part of Tully's legacy:
"Get Travelers for construction bonds—a solid policy."

2.

As boys are wont to, Tully, Jr. flouted Dad's advice—
He figured bonds were all alike, and *any* would suffice.
He did not call The Travelers when a big job came along;
He couldn't enter *any* bid—his bond was late and wrong.

3.

"I'll never make the same mistake again," our hero swore.
"My patriarch advised me right: it's Travelers evermore."
That day he called The Travelers. "Hasten! Satisfy my need:
I want a bond—I want it fast—with supersonic speed."

4.

He hung the telephone back up and wow! Was he surprised—
Before his eyes was Travelers' man, as fast as advertised.
Why let a tardy bond derail *your* well-laid bidding plan?
For speedy bonds and expert service get a Travelers man.

NOTE: *Comp. Equipment Floaters · Builders' Risk Insurance, too. Are other ways The Travelers helps a contractor like you.*

THE TRAVELERS
Insurance Companies
HARTFORD, CONN.

All forms of business and personal insurance including Life • Accident • Group • Fire • Marine • Automobile • Casualty • Bonds

Name your bearing needs...we'll meet 'em pronto from 30 types, 10,247 sizes

TIME and time again, machinery makers come to the Timken Company for help with some special bearing application problem. One they think hasn't been solved before. And time after time, from our 30 types and 10,247 sizes of Timken® tapered roller bearings, we've come up with the bearing design to do the job and at minimum cost.

It's no accident that we can help out so often. In sixty years of helping machinery builders with bearing problems, we've engineered and produced the world's largest selection of tapered roller bearings. And we've constantly improved our designs. The answers to thousands of bearing application problems are already in our files. Ready and available to help you.

And machine users get the same swift service if they ever need a replacement Timken bearing. Even for old machines, they can almost always count on immediate delivery of Timken bearings for replacement.

Why not call on our engineers for help whenever you have a bearing application problem or requirement? Timken is your No. 1 bearing value. Wherever wheels and shafts turn, Timken bearings eliminate friction, cutting wear and maintenance to a minimum. Specify bearings trade-marked "Timken" for the machines you buy or build. The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ont. Cable: "TIMROSCO".

This symbol on a product means its bearings are the best.

TIMKEN

TAPERED ROLLER BEARINGS ROLL THE LOAD